

THE USS ENTERPRISE

D & S
VOL. 39

THE WORLD'S FIRST
NUCLEAR POWERED
AIRCRAFT CARRIER
CVAN-65 to CVN-65



in detail & scale

Bert Kinzey

DETAIL & SCALE SERIES

The Detail & Scale Series of aviation publications was the first to focus its attention on the many physical details of aircraft such as cockpit interiors, radar and avionics equipment, armament, landing gear, wheel wells, and ejection seats. These details and many others are covered more thoroughly than in any other publications, and are presented in the form of close-up photography and line drawings. Special consideration is given to the detail differences between the variants and sub-variants of the aircraft that is covered. These differences are discussed in the text and are illustrated with photographs.

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The Detail & Scale Series is detailed, technical, and accurate, providing the most comprehensive coverage of this type that is available anywhere in military publications.

ABOUT THE AUTHOR

Bert Kinzey, author and President of Detail & Scale, Inc., graduated from Virginia Tech in 1968 with a degree in Business Administration. Upon his graduation he was commissioned a second lieutenant in the U. S. Army, and was sent to the Army's Air Defense School at Fort Bliss, Texas. During his eight years as an officer, Bert commanded a Hawk guided missile battery just south of the DMZ in Korea, and later originated, wrote, and taught classes on the Soviet air threat, military airpower, air defense suppression, and aircraft identification at Fort Bliss. It was during this time that Bert did his first writing. Being dissatisfied with the existing manuals and other materials available for his classes, he wrote his own reference books and other publications. Although he only intended for these to be used in his classes, they were soon placed on the Army's publication list and distributed



throughout the military.

In 1976, Bert resigned from active duty, but his reputation for being knowledgeable about all aspects of military airpower soon led to his taking a civilian position as a subject matter expert with the Department of the Army. His primary responsibility was to develop a new program to teach aircraft identification to the operators of various ground-based air defense weapons systems.

It was during this time that Bert started Detail & Scale, a part time business to produce a new series of books on military aircraft. These books became so successful that Bert soon resigned from his position with the Department of the Army and began writing full time. He has since added ships to the well known Detail & Scale Series, and has begun a second series called Colors & Markings. Bert has written numerous books and magazine articles, and is often a guest on radio talk shows discussing military aircraft and world airpower. He has also served as a technical consultant to companies who have a need for expertise on military aircraft.*

Today Bert is a well known aviation writer who gives frequent presentations and speeches about military airpower and the air threat when he is not busy writing and editing an average of eight books per year. He is an avid modeler and member* of the International Plastic Modelers Society (IPMS). At one of its national conventions, IPMS/USA presented Bert with a special award in recognition of his contributions to the society. As a military photographer, Bert travels extensively to take pictures of aircraft and ships, and has assembled one of the largest collections of military-related photographs in the world. He is also a member of the Aviation and Space Writers Association and is a licensed pilot. Bert and his wife, Lynda, live near Atlanta, Georgia, and have two grown children, Janet and Chip.

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USS ENTERPRISE, CVN-65

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Photographs credited to USS ENTERPRISE are official U.S. Navy photographs provided by the public affairs office and the photographic section of USS ENTERPRISE.

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PH2 Robert Williams

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PH3 Doug Badders

PH3 Mike Saunders

PH3 Greg Welch

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Many photographs in this book are credited to their contributors. Photographs with no credit indicated were taken by the author.

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Front cover: Coming straight at the camera, ENTERPRISE creates an imagery of the power she projects in defense of freedom and peace. (USS ENTERPRISE)

Rear cover: A stern view of ENTERPRISE reveals details of her design and emphasizes her enormous size and power. It has been over thirty years since she was launched, yet ENTERPRISE remains dimensionally the largest warship ever built. Her overall length is 1,123 feet, and her maximum width is 257 feet. (USS ENTERPRISE)

INTRODUCTION



Carrying on the proud tradition established by the aircraft carrier ENTERPRISE of World War II, today's nuclear powered ENTERPRISE continues to uphold a reputation which is based on a proud record encompassing world diplomacy, deterrence, and engaging in combat when needed.

(USS ENTERPRISE)

The name ENTERPRISE is certainly one of the most famous in the history of the U.S. Navy, and no less than eight ships have carried this name since 1775. Although the first six ships to bear this name served proudly, it was the seventh of these ships that made the name ENTERPRISE a household word during World War II. This was the first aircraft carrier to be named ENTERPRISE, and it was the second ship of the three-ship YORKTOWN class. All three of these aircraft carriers were designed and built before World War II, but only USS ENTERPRISE, CV-6, would survive the entire war and be around to fight at the end. She fought in all the major battles of the Pacific War, and in the process, became the most decorated ship in U.S. Navy history. She was the only Naval ship to receive both the Presidential Citation and the Navy Unit Citation, and earned twenty battle stars in four years of action. In 1947, she was placed in reserve, then stricken from the list of ships in 1956. Tragically she was scrapped, and if ever a ship should have been preserved as a memorial, it was the "Big E" of World War II.

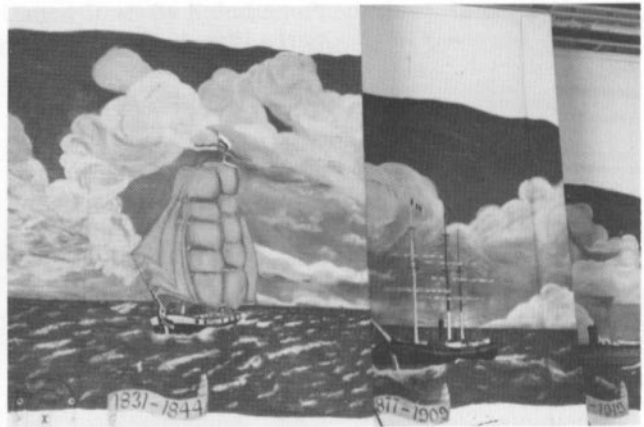
Although CV-6 was not preserved, her memory was honored when the name ENTERPRISE was given to a new aircraft carrier even before the cutter's torches had done their job. This new carrier was originally designated CVAN-65, and her keel was laid on February 4, 1958. Even before she was launched, it was certain that the new ENTERPRISE would also be a famous ship, because she was the first aircraft carrier in the world to be powered by nuclear energy.

Since 1961, ENTERPRISE has sailed the oceans of the world, projecting power during peace and war, and

has carried on the proud tradition of the earlier ships to bear her name. As this is written she is entering the yard for a long overhaul and refueling of her eight nuclear reactors. When she rejoins the Navy at sea, her fighting capabilities will have been enhanced, and she will be able to steam for twenty years without refueling.

On the pages that follow is the most detailed look at the nuclear powered aircraft carrier, USS ENTERPRISE, ever published. A brief historical summary covers the highlights of her operational life of thirty years, and describes the major improvements and changes made to the ship during that time. Next is a look at the aircraft that comprise the carrier's air wing and provide her offensive and defensive power. But the real emphasis of this book is the detailed look at the ship itself. The reader is actually taken on a tour of the ship, and all major components from the catapults to the arresting gear, and from the bridges to the living quarters are illustrated. The radar systems, weapons, and anchors are all shown in close-up and detailed photographs, most of which were taken specifically for this publication. The reader will see the LSO platform, the fresnel lens, and the medical and dental facilities. He will tour the expansive hangar deck, and ENTERPRISE's unique superstructure. He will see where the members of the crew work, eat, and sleep. For everyone who can only dream about visiting aboard a nuclear powered aircraft carrier at sea and watch air operations from the bridge, this book is the next best thing. For the scale modeler, our usual Modelers Section reviews the available model kits of ENTERPRISE from Aarii's small 1/800th scale kit to Tamiya's huge 1/350th scale model.

SHIP'S HISTORY



Murals of the first six ships to be named ENTERPRISE are painted on the fire doors that separate the hangar deck into two bays. Although the doors were partially open when these two photographs were taken, and some of the paintings are not visible, it is still apparent that the art work is very well done.

THE LEGACY

The nuclear-powered aircraft carrier ENTERPRISE, CVN-65, is the eighth ship in U.S. naval history to bear the name ENTERPRISE. It is a name which was first used in 1775 for a seventy-ton sloop that was captured from the British on Lake Champlain. Armed with twelve four-pounders and crewed by fifty men, this first ENTERPRISE harassed British forces as they moved southward from Canada through the state of New York. She was burned on July 7, 1777, to prevent being recaptured by the British.

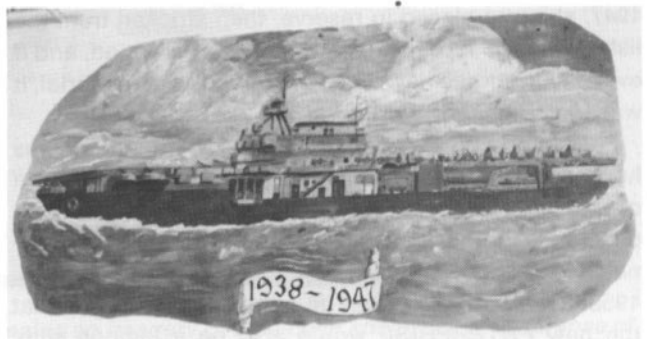
The second ENTERPRISE evidently served during the same time frame as the first. She was built in Maryland, and was originally a private schooner. Displacing twenty-five tons, and armed with eight guns, she served in the Chesapeake Bay for only a short time before being returned to Maryland. Also built in Maryland, the third ENTERPRISE was a 135-ton schooner approximately eighty-five feet long. She was armed with twelve six-pounders and was crewed by seventy men. Her service with the Navy began in 1799, and she participated in the war with France in 1799 to 1801. She then fought in the Mediterranean in the wars with the Barbary Coast pirates. After being rebuilt and rearmed with sixteen guns, she participated in the War of 1812, and captured the British Brig BOXER. In 1823, luck ran out for the "Lucky Little ENTERPRISE" when she ran aground in the Caribbean and was lost.

Built at the New York Navy Yard, a schooner of 194 tons and ten guns became the fourth ENTERPRISE in 1831. She saw service in the Atlantic, Pacific, and on the East India Station before being sold in 1845. It was after the War Between the States before another ENTERPRISE entered service with the U.S. Navy. The fifth ENTERPRISE was a wooden, steam-powered corvette armed with eight guns of various types. Displacing 1,375 tons and being almost two hundred feet long, she was the largest ENTERPRISE built up until that time. A crew of 184 men operated her in the North Atlantic, Mediterra-

nean, and in the West Indies during the first part of her life. Later she became a training ship with the State of Massachusetts before being sold in 1909.

The sixth ENTERPRISE was a small motor patrol boat of only sixteen tons and a single one-pound gun and a machine gun. She had originally been a private yacht, but was purchased by the Navy in December 1916 for patrol duty. During World War I she served the Second Naval District, and was sold to the Bureau of Fisheries in August 1919.

The seventh ENTERPRISE was one of three ships of the YORKTOWN class of aircraft carriers built in the late 1930's. She was the only one of these three carriers to survive the war, and in the process, she became the most decorated ship in the history of the U.S. Navy. Built by Newport News Shipbuilding and Drydock Company, CV-6 was commissioned on May 12, 1938. She was 827 feet long and 114 feet wide. Her maximum displacement was 32,000 tons, and she carried up to 100 aircraft. Known as the "Big E," she fought in almost every major battle in the Pacific during World War II, and earned twenty battle stars. On December 10, 1941, she became the first American ship to sink a Japanese combat ship,



A separate mural features the most famous ENTERPRISE, CV-6, from World War II. This painting is located just forward of the sliding doors seen in the two photographs above, and it is on the port side.

when her aircraft sunk the submarine I-70. During the war, she and her aircraft destroyed 911 enemy planes and damaged 192 more. Her aircraft also sank or helped sink thousands of tons of enemy shipping including the carriers Akagi, Kaga, Hiryu, and Soryu during the Battle of Midway. The Japanese reported sinking her no less than six times, but she survived both bomb and kamikaze hits while earning the Presidential Unit Citation, the Navy Unit Commendation, and many more decorations. Decommissioned in 1947, she remained inactive and in reserve until she was sold for scrap in July 1958. For those who served aboard her, and for many American people who knew of her service and her records, her scrapping was nothing short of a criminal act.

Although the seventh ENTERPRISE was gone, her legacy and tradition was kept alive when it was decided to name the first nuclear-powered aircraft carrier ENTERPRISE. The new carrier's keel was laid on February 4, 1958, even before the cutters' torches began to dismantle CV-6.

NUCLEAR-POWERED AIRCRAFT CARRIERS

The reorganization of American military forces in the years immediately following World War II caused a great deal of turmoil and divisiveness between the various branches of the services. Within the new Department of Defense, the newly-formed U.S. Air Force seemed to think it had all the answers and should have all the funds and power. Air Force advocates argued that aircraft that could deliver atomic bombs were all the offense the nation needed, for it would deter any potential adversary. If not, interceptors, also belonging to the Air Force, would provide the defense against the enemy's bombers. The Air Force also argued that aircraft carriers were obsolete in light of the new atomic weapons, and if any naval air arm did exist, it should come under Air Force jurisdiction. In spite of the fact that such control of naval air power had proven disastrous for the British, and that the other contentions of the Air Force with respect to naval air power were completely absurd, the Air Force's generals were successful in convincing the first Secretary of Defense, Louis Johnson, to cancel the first so-called super carrier, the USS UNITED STATES, only a few days after its keel was laid. (See Detail & Scale Series, Volume 36, on the USS FORRESTAL.) At the end of World War II, the U.S. Navy could put one hundred aircraft carriers to sea including its fleet carriers, light carriers, and escort carriers. By 1950, only seven large carriers were in the active inventory. However, events in Korea proved the Air Force's claims to be foolish, self-serving, and certainly not in the best interest of the United States.

As a result, the U.S. Navy was authorized to build its first class of super carriers, and to convert older ships so that they could effectively operate jets and carry nuclear weapons. Meanwhile, early Navy jets, in the form of Grumman F9F Panthers and McDonnell F2H Banshees,

proved that jets could operate successfully from aircraft carriers as they flew missions against the communists in Korea.

Four super carriers of the FORRESTAL class were built, and these were followed by the nearly identical KITTY HAWK and CONSTELLATION, which were similar to the original FORRESTALS. However, they had a better flight deck arrangement and other improvements. All six of these first super carriers were fossil-fueled, and as of this writing, all six are still in service with the U.S. Navy.

The idea of using nuclear energy to power ships was conceived even before the first nuclear explosion was detonated. Once the theory of smashing the atom became a reality, the idea of building nuclear reactors to harness this enormous source of energy for all kinds of purposes was in the minds of the nuclear scientists. Nuclear energy offered an alternative to the earth's shrinking supplies of energy-producing resources.

The first type of ship considered for nuclear propulsion was the submarine. With diesels, which could only operate on the surface, and batteries to propel the ship under water, conventional submarines were severely limited. Standard procedures called for them to operate on the surface at night while recharging their batteries, then operate submerged during the day. An atomic-powered submarine could operate submerged as long as the crew and supplies could hold out. By 1955, the USS NAUTILUS, SSN-571, had successfully demonstrated the use of atomic power in propelling ships, and dramatically sailed under the polar ice cap to the north pole. By that time, the Navy had already begun exploring the idea of using nuclear reactors to power its surface ships.

Carriers were certainly not at the top of the list of surface ships that the Navy was considering for atomic power. Smaller escorts, such as destroyers and frigates, seemed to be the logical choice. Their small size limited the amount of fuel that could be carried, and therefore they required frequent refuelings to operate with the fast carrier forces. Aircraft carriers were huge by comparison, and could carry considerably more fuel, some of which was often transferred to the smaller escorts. Further, the fuel storage was part of the protection designed into the ships. But the capabilities and advantages of a nuclear-powered carrier became more and more apparent as time went on. Jets required a lot more fuel than piston engines, and as more and more jets made up the carriers' air wings, the need to carry greater quantities of jet fuel became critical. Much of the space needed to carry black oil on a conventional carrier could be utilized for jet fuel on a nuclear-powered carrier. Eliminating the need for fuel oil also meant that more space was available for other equipment as well. The carrier could then carry on sustained flight operations and otherwise continue to function for much longer periods of time than a conventional aircraft carrier.

But there would also be many more advantages to a nuclear-powered aircraft carrier. Perhaps the most

important of these would be the ability to operate at high speed for long periods of time. The nuclear-powered warship also would have unlimited range for all intents and purposes. Eliminating the needs for uptakes to vent gases and intakes to supply air to the boilers would mean that the ship's construction could be stronger. With no large ducting running between the boilers and funnel, more room would be available on the hangar and flight decks for aircraft, and below decks for shops and crew compartments. No boilers plus no funnel meant no smoke, and this would be an advantage to the pilots as they made their landings. On conventional carriers pilots had to land through the ship's exhaust gases, but on a nuclear-powered carrier, the landing could be made unobscured by these gases. It would also decrease the turbulence behind the ship and make the landing smoother. The lack of intakes also meant that the ship could be more effectively sealed against chemical, biological, and nuclear attack.

Another advantage of a nuclear-powered carrier was that the reactors could produce all of the steam necessary to operate the catapults without lessening their ability to propel the ship. The reactors could also power the electrical plant and supply other auxiliary power without concern about increased fuel consumption. In short, a carrier commander could operate his ship at high speed with unlimited range, call on vast reserves of steam and electrical power, and never have to keep an eye on the fuel gauge!

More fuel to operate aircraft, more space available for aircraft, more working and living spaces, unlimited range at high speed, stronger construction, and the other advantages of nuclear power all combined to increase the combat effectiveness of the ship. But there was one big "disadvantage" in the minds of the politicians and bureaucrats. The nuclear-powered aircraft carrier cost more than a conventional one. The building costs for ENTERPRISE were considerably more than for KITTY HAWK and CONSTELLATION that preceded her. Much of this, however, was related to the research and development of the first reactors to be used in the first nuclear-powered surface ships. Most of the costs were also initial costs, not long range operating costs. Considering the price of oil, it seems obvious that the long term costs of a nuclear-powered carrier are much more favorable. It is anticipated that ENTERPRISE will be able to serve for twenty years on the reactor cores that are being installed during her 1990-1993 yard period. One can only guess how much oil she would burn in those twenty years if she was conventionally powered, and how much that oil would cost. Nuclear-powered surface ships have routinely gone thirteen years without burning a drop of oil to propel them through the seas. Certainly, anyone can understand this tremendous advantage. Further, when conventionally powered ships have to be refueled at sea, they are far more vulnerable to air and submarine attack. Eliminating these at-sea refuelings and reducing the need for other underway replenishments further

enhances the survivability of the nuclear-powered ship.

But the high initial cost of ENTERPRISE was unacceptable to the short-sighted Kennedy administration and its Secretary of Defense, Robert Strange McNamara. In one of his many ill-advised and costly decisions, Mr. McNamara ordered that the following two carriers be conventionally powered. The five sister ships of ENTERPRISE were cancelled. Thus, USS AMERICA CVA-66, and USS JOHN F. KENNEDY, ironically named for the president whose administration greatly delayed her construction and prevented the Navy from building her with nuclear-power, were built as conventionally-powered carriers. The magnitude of this mistake has been emphasized over the years, both as it pertains to long range costs and combat effectiveness. Fortunately, after AMERICA and KENNEDY were built, the Navy was authorized to again build nuclear-powered carriers in the form of the NIMITZ class. By the time NIMITZ was built, reactor technology had advanced to the point where only two reactors were required as compared to the eight installed in ENTERPRISE. The cost of reactor fuel has steadily gone down, while the cost of oil has gone up and up. Further, the life of the reactor cores has gone from two years to twenty years!

NUCLEAR REACTORS FOR SURFACE SHIPS

In August 1950, the Chief of Naval Operations, Admiral Forrest Sherman, presented a request to the Bureau of Ships that asked for a study on the feasibility of a nuclear-powered aircraft carrier. Captain H. G. Rickover, well known for his work with nuclear-powered submarines, and now called the Father of the Nuclear Navy, proposed that a shore-based prototype reactor for such a ship be built by 1953. This would then be followed by a shipboard unit two years later. But America was developing her stockpiles of nuclear weapons at that time, and the enriched uranium required for both the weapons and the reactors was not available in sufficient quantities for both programs. The weapons program was considered more vital, so these prototypes were never built. Within the Navy itself, it was considered far more important to build reactors for submarines than it was for carriers. The advantages nuclear power offered for submarines were even greater than those for any surface ship. Therefore, the prospect of building a nuclear-powered carrier in the early 1950s appeared to be minimal. The efforts by the Eisenhower administration to cut the defense budget further lessened the chances that such a ship would ever be built.

As nuclear technology developed, the feasibility of developing reactors to power all types of ships from submarines to aircraft carriers improved. Rickover proposed that five different types of reactors for powering ships be developed, and finally both the administration and the Atomic Energy Commission approved the construction of a land based prototype of a reactor plant that could be used to power an aircraft carrier. Known as the

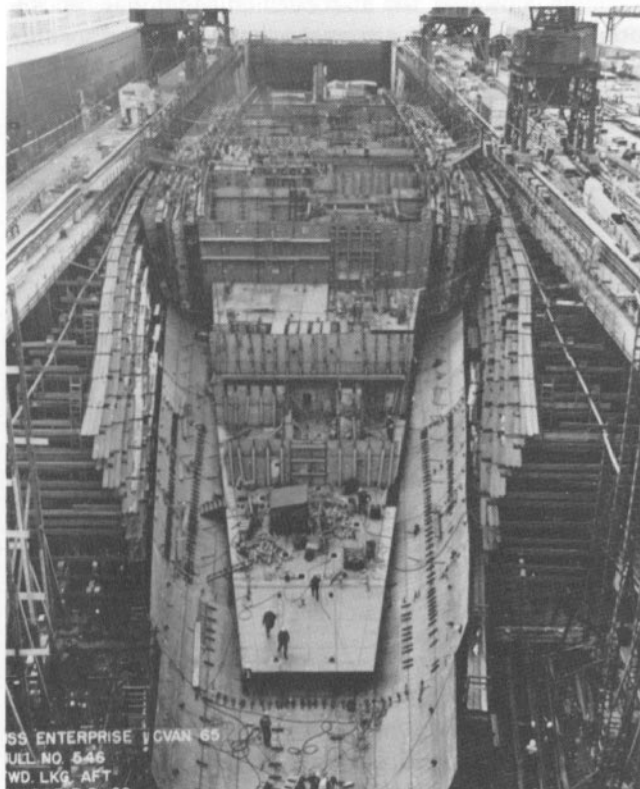
A1W, it consisted of two reactors that would drive each shaft and propeller. Therefore, it would take a total of eight reactors to drive all four shafts and propellers of a carrier. In the designation, the A stood for aircraft carrier, the 1 meant that it was the first design, and the W stood for Westinghouse, the designer and builder of the plant. The follow-on to the A1W was the A2W, and it was this type of reactor that was ultimately installed in ENTERPRISE. Producing 35,000 shaft horsepower per reactor, the entire plant was rated at 280,000 SHP. This was sufficient to propel ENTERPRISE at speeds in excess of thirty-five knots. When she was commissioned, ENTERPRISE's plant was the largest nuclear power facility in the world, and it could supply the electrical needs of a city the size of Minneapolis, Minnesota.

USS ENTERPRISE, CVAN-65

Prior to October 1, 1952, the U.S. Navy grouped its aircraft carriers into the following classifications; CVB (large aircraft carrier), CV (aircraft carrier), CVL (light aircraft carrier), and CVE (escort aircraft carrier). This system classified the carriers based on their size. Beginning on October 1, 1952, the CVBs and all other large carriers were reclassified as CVAs (attack aircraft carriers). But some ESSEX class carriers were converted to perform the attack role, and others were converted and

optimized for the anti-submarine support mission. Therefore, the CVS (anti-submarine support carrier) designation was added on July 8, 1953, and carriers were then classified according to their mission rather than their size. When ENTERPRISE was authorized, her designation was CVAN-65, with the N being added to denote that she was nuclear powered. It was this designation that was used for ENTERPRISE up until the "CV concept" was adopted by the Navy. Under this concept, all aircraft carriers are now designated CV or CVN, and are considered to be multi-purpose ships. This means that both the attack and anti-submarine missions are performed by each carrier, and all types of aircraft, including the S-3A Viking anti-submarine warfare aircraft, are all carried aboard each of the super carriers. By the mid-1970s, all former attack and anti-submarine support carriers of the ESSEX class had been removed from service. In keeping with the CV concept, ENTERPRISE was redesignated CVN-65 on June 30, 1975, and this remains her classification to this day.

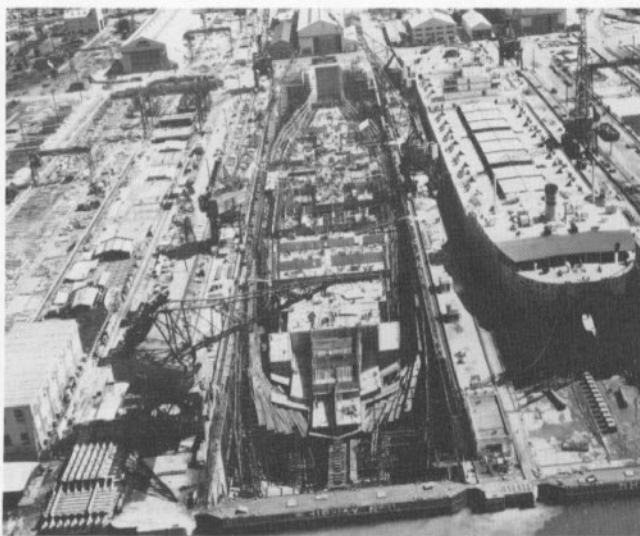
Authorization was granted and funds approved for ENTERPRISE in the FY 1958 budget, and the Navy gave the contract to build the carrier to the Newport News Shipbuilding and Drydock Company on August 1957. She was given that company's hull number 546, and the keel was laid on February 4, 1958. At the ceremony it was announced that the carrier would be named ENTERPRISE and would carry on the proud tradition of CV-6 and her forebearers.



ENTERPRISE was built at the Newport News Shipbuilding and Drydock Company, and assigned hull number 546. This view was taken from the forward end looking aft, and it shows the work in progress as of December 23, 1958. (USS ENTERPRISE)

DESIGN FEATURES

The design of ENTERPRISE basically followed that established as the "improved FORRESTAL" design used for KITTY HAWK and CONSTELLATION. This included four steam catapults, two in the bow and two on the port



This stern view was taken on March 23, 1959. ENTERPRISE was built in a drydock rather than on a conventional shipway, and was launched or "floated" simply by flooding the drydock. (USS ENTERPRISE)



Taken on September 24, 1960, this photograph shows ENTERPRISE on the date she was launched. Careful examination of this photo will reveal an F-8 Crusader on the number one elevator, and an A-4 Skyhawk near the number two catapult.
(USS ENTERPRISE)

waist, and four deck-edge elevators. Three of these were positioned on the starboard side, with two being forward of the superstructure, and the third being just aft of it. The fourth elevator was located on the port side aft of the two waist catapults. All four elevators could be used during flight operations. Four arresting cables were positioned in the landing area to bring aircraft to a stop, and a barricade was provided to be used when a normal arrested recovery could not be accomplished.

The hangar deck was divided into two bays instead of the usual three found on previous carriers, and large fireproof and blastproof doors could be used to separate the two bays.

Perhaps the most unique feature of ENTERPRISE was her box-like superstructure. With no funnel, it had an appearance completely unlike any other carrier in the Navy. A futuristic looking antenna housing carried ECM gear and was placed atop the superstructure. It was called the "beehive" because of its unusual appearance. Non-rotating SPS-32 and SPS-33 radar antennas were also distinctive, and took the form of "billboards" on the four faces of her superstructure. Originally, a short pole mast with a single yardarm was located atop the beehive ECM housing, but by February 1965, the mast had been raised ten feet, and a second yardarm had been added. In her 1979-1982 refit, both the beehive housing and the billboards of the SPS-32 and SPS-33 radars were removed, but the boxy-shaped superstructure still remains as the most distinctive recognition feature of ENTERPRISE.

As originally designed, ENTERPRISE was to be fitted with two Terrier missile launchers on her quarters. But these were not installed to help hold down costs. ENTERPRISE therefore joined the fleet with no defen-

sive armament. Two Mark 25 Sea Sparrow Basic Point Defense Missile Systems (BPDMS) were installed in 1967. During her 1979-1982 yard period, the two Mark 25 launchers were removed and replaced with two Mark 29 systems. However, the starboard launcher was repositioned to the bow on a sponson that was added specifically for the launcher. Associated radars for the Mark 29 system were added to two corners of the superstructure. At the same time, three Mark 15 Phalanx Close-In Weapon Systems (CIWS) were also added.

OPERATIONAL HISTORY

ENTERPRISE was launched on September 24, 1960, and christened by Mrs. William B. Franke, wife of the Secretary of the Navy. During the ceremony, the last National Ensign and Jack to be flown over her namesake, USS ENTERPRISE, CV-6, were hoisted and flown over the new carrier. The launching was also a first, as ENTERPRISE was built in a drydock rather than on a conventional shipway. Launching was accomplished simply by flooding the drydock, rather than sliding the ship down the ways.

By October 1961, ENTERPRISE was ready for her trials. For the first time ever, her builder's trials and Navy pre-acceptance trials were conducted simultaneously. She successfully completed all trials, and met or exceeded all design specifications during her six days of evaluation. ENTERPRISE became a commissioned ship on November 25, 1961, and Captain Vincent P. dePoix, USN, became her first commanding officer. However, it was not until after Christmas, in January 1962, that ENTERPRISE first put to sea as a commissioned ship of the U.S. Navy. On January 17, Commander George C.



CDR W. M. Harnish (left), executive officer of ENTERPRISE, and CDR H. F. Lang, operations officer, congratulate CDR George Talley, commander of Carrier Air Group 1 (CVG-1), after he made the first arrested landing aboard the carrier on January 17, 1962. CDR Talley flew an F-8 Crusader, and was followed by other pilots and aircraft from the air group. (USS ENTERPRISE)

Talley, Jr., the commanding officer of Air Group One, made the first arrested landing in an F8U Crusader. He was followed by other aircraft from CAG-1. ENTERPRISE then took up her assigned station off Bermuda as part of the recovery force for America's second attempt to launch a man into space, but when the mission was postponed, ENTERPRISE returned to Norfolk.

During her shakedown cruise, which began in February 1962, ENTERPRISE continued to impress her crew, the Navy, and her builders with her performance. She earned the highest scores ever attained by a new aircraft

carrier during a shakedown cruise. With CAG-1 aboard, she added VAH-7, the first operational unit with the A3J (later A-5A) Vigilante, at Mayport, Florida. VF-102, a squadron that had transitioned to the new F4H (later F-4B) Phantom, was also aboard. She then headed to Guantanamo Bay, Cuba, to conduct her shakedown cruise. On February 15, less than one month after Commander Talley had made the first landing, ENTERPRISE recorded her 1000th arrested recovery. The shakedown cruise lasted until April 5, when she returned to Norfolk. A few days later, President Kennedy, U.S. Congressmen, and government officials from several foreign nations visited the new carrier and witnessed a demonstration of her capabilities.

By June 1962, ENTERPRISE had completed her post-shakedown yard period, and was ready to return to sea. After a port call in Boston on Independence Day, ENTERPRISE returned to Norfolk to prepare for a short Mediterranean deployment with the Sixth Fleet. She departed Norfolk on August 3, and headed for the Mediterranean, participating in NATO exercise RIPTIDE III enroute. On August 16, she became the first nuclear-powered surface ship to enter the Mediterranean Sea.

After participating in several exercises with ships from other NATO countries, ENTERPRISE returned to Norfolk on October 11, 1962, but she was not there for long. President Kennedy announced the blockade of Cuba, and ENTERPRISE was operating off that island nation with other ships of the Second Fleet within a week.



During her shakedown cruise, ENTERPRISE visited Guantanamo Bay, Cuba, and is shown here anchored off shore in March 1962. A wide variety of aircraft can be seen on her flight deck. Crusaders and Skyhawks are on the stern, and an E-1B Tracer and several Skyraiders can be seen near the ship's crane and number three elevator. An F-4 Phantom is aft of the superstructure and tilly, while more Crusaders and Skyhawks can be seen near the waist catapults. Two more Phantoms are on the number two elevator, and two Vigilantes are between elevators one and two. Another Vigilante can be seen on cat two, and a Tracer is just forward of elevator number one. Two Skyhawks, three Phantoms, and four Skyraiders are positioned forward. The early short mast with its single yardarm is visible atop the beehive ECM structure. (USS ENTERPRISE)

The blockade lasted until November 21, at which time the Soviets withdrew their offensive missiles from Cuba. ENTERPRISE then returned to Norfolk where she conducted carrier suitability trials for Grumman's new A-6A Intruder and E-2A Hawkeye.

By that time, ENTERPRISE had completed her first year as a commissioned ship in the U.S. Navy. She had already steamed over 65,000 miles and made more than 10,000 arrested landings.

After celebrating the holidays at home, ENTERPRISE joined with the nuclear-powered frigate BAINBRIDGE (since reclassified as a cruiser), and, on February 7, 1963, they sailed for the Mediterranean Sea where ENTERPRISE relieved USS FORRESTAL. This was her first major deployment, and it lasted until September 4, 1963. During the cruise, ENTERPRISE participated in the usual exercises and made port calls where she was visited by dignitaries from several nations.

On February 6, 1964, ENTERPRISE again headed for the Mediterranean Sea where she relieved USS INDEPENDENCE. On May 13, she joined with BAINBRIDGE and the nuclear-powered cruiser USS LONG BEACH to form the first nuclear-powered task force in the world. The first job of this force was to test and evaluate the Navy Tactical Data System (NTDS) which was installed in ENTERPRISE and LONG BEACH. Then, on July 31, the world's first three nuclear-powered surface combatants were designated Task Force One, and they steamed past Gibraltar to begin a 30,565-mile trip around the world. Named Operation Sea Orbit, the trip took sixty-five days, during which time many port calls were made. But the significance of the operation was that the entire trip was made without any refueling or replenishment of any kind. This dramatically demonstrated the advantages of nuclear-powered ships. At one point during the cruise, the three ships steamed 5,155 miles in only eight days, nine hours, and fifty-two minutes. The average speed for this run was twenty-five knots. During the voyage, ENTERPRISE's air wing was also quite active. They flew 1590 sorties totaling 2372 flight hours. During training exercises and firepower demonstrations, they dropped 240 bombs, launched 2766 rockets, and fired 12,500 rounds of 20mm ammunition. Again, this was done without any kind of replenishment.

After returning to Norfolk, ENTERPRISE entered the yards for her first overhaul. It was at this time that the Integrated Operational Intelligence System (IOIS) was added; as was a satellite navigation system. She had steamed over 200,000 miles on her original reactor cores, and these were replaced with new cores that were expected to last thirteen years. Advancing nuclear technology had also brought the cost of the cores down, and the second set was less expensive than the first. The same technology had increased the life expectancy of the new cores at least six times over the original ones.

One noticeable external change was made during this yard period. It was at this time that her mast was raised

ten feet, and a second yardarm was installed. Inside, an oil-fueled boiler was added to provide power for lighting, heating, and air-conditioning when the reactors were not operating. Two of her propeller shafts were replaced, and the other two were removed and serviced.

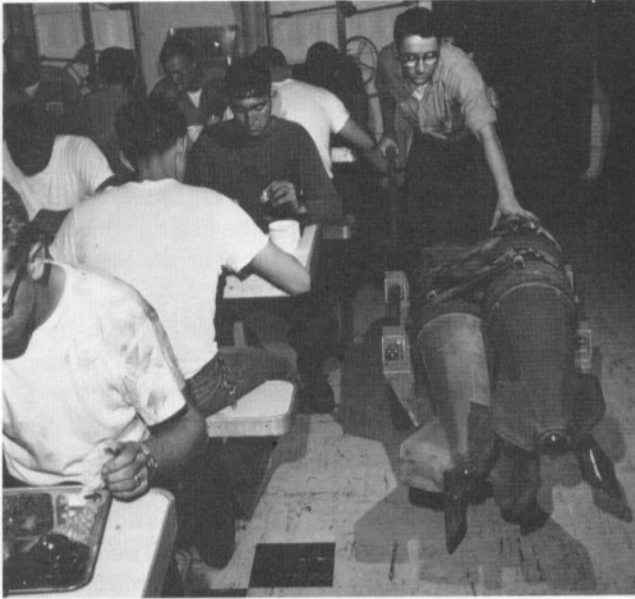


ENTERPRISE became the first nuclear powered warship to engage in combat on December 2, 1965, when she launched strikes against the Viet Cong. A-4 Skyhawks are shown here returning from the first missions over Vietnam. On this day, 137 sorties were flown, and the aircraft destroyed a bridge, ninety-four structures, a communications station, and seven bunkers. Two sampans were also sunk. The following day ENTERPRISE set a record of 165 strike sorties in a single day.

(USS ENTERPRISE)

By June 22, 1965, ENTERPRISE was ready for sea, and she began conducting trials and carrier qualifications. On October 9, 1965, ENTERPRISE departed Norfolk and the Atlantic to begin her first cruise off Vietnam. On December 2, ENTERPRISE became the first nuclear-powered warship to engage in combat, when she launched 125 sorties against the Viet Cong. On December 3, ENTERPRISE set a new record by launching 165 sorties in a single day. During her first line period, the systems and capabilities of ENTERPRISE were thoroughly tested, and they exceeded all expectations. Her first cruise off Vietnam lasted until June 5, 1966, when ENTERPRISE finally headed for home. By that time, she had launched 13,020 sorties, and delivered almost 9,000 tons of ordnance to the enemy.

On June 21, ENTERPRISE arrived at her new home port at NAS Alameda, California. After a tumultuous welcome and celebration, she entered the yard for a brief overhaul. It was during this yard period that ENTERPRISE was finally provided with shipboard defensive armament. Two Mark 25 launchers for the Sea Sparrow Basic Point Defense Missile System (BPDMS) were



The work must go on! Here an ordnance man trucks bombs through the enlisted mess area during loading operations as fellow shipmates take time to eat chow. This photograph was taken while the ship operated on Yankee Station off the coast of North Vietnam.

(USS ENTERPRISE)

added on her quarters in the positions originally intended for her Terrier launchers. She was also made ready to operate the A-6 Intruder and E-2 Hawkeye aircraft that would be joining her air wing.

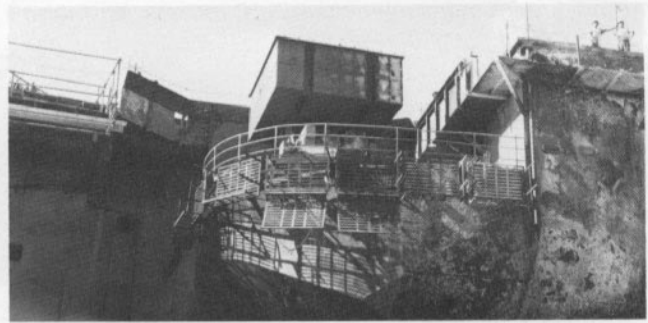
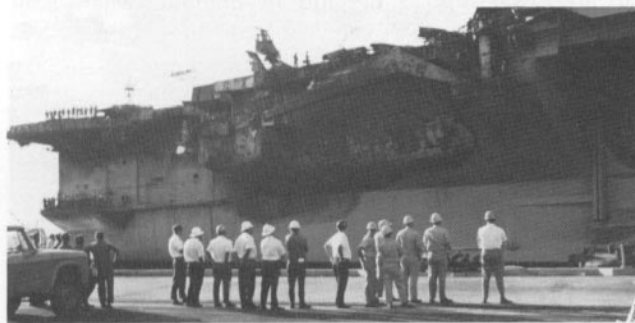
By the end of the year, she had begun her second combat cruise and was back off the coast of Vietnam pounding the enemy. During this cruise, the A-6A Intruder and the E-2A Hawkeye operated from her decks for the first time. On July 6, 1967, ENTERPRISE returned to Alameda after her air wing had flown 13,400 missions against the communist installations in Vietnam.

After the usual time of rest, recuperation, and repair, ENTERPRISE again began to conduct training and qualifications in preparation for her third consecutive combat cruise. This time, the A-4E and the new A-4F versions of

the Skyhawk joined her air wing to attack targets in Vietnam. The Pueblo incident of January 1968 added to the tension, and she became the flagship for Task Force Seventy-One which was created to respond to the incident if needed. After a month of "watchful waiting," she headed for the Gulf of Tonkin, and by the end of February, ENTERPRISE had arrived on Yankee Station. Following almost six months on the line, ENTERPRISE once again returned home to Alameda. She then steamed to Puget Sound for a minor overhaul. By October 9, 1968, she was conducting training, inspections, and evaluations in preparation for yet another combat cruise.

The crew of ENTERPRISE enjoyed the holidays at home before leaving for Hawaiian waters where she was scheduled to undergo her annual Operational Readiness Inspection (ORI), enroute to Vietnam. On January 14, 1969, while conducting her ORI off Hawaii, a rocket exploded on the aft section of the flight deck and caused a fire among parked aircraft that were fueled and armed in preparation for launching. Nine bombs exploded in the fire, killing twenty-eight crewmen and injuring 343 others. Fifteen aircraft were destroyed before the fires could be brought under control. Several A-7B Corsair IIs, which has replaced the Skyhawks in CVW-9, were among the aircraft that were destroyed. Although emergency repairs could have made ENTERPRISE ready to resume flight operations in a matter of hours, she headed to Pearl Harbor so that permanent restoration could be made.

Repairs were made in half of the estimated time, and on March 5, ENTERPRISE returned to sea for five days of trials. With these successfully completed, she again headed for Vietnam and her fourth consecutive combat cruise. By March 31, she was on station and launching strikes at the enemy. Only two weeks passed before she was again ordered to the Sea of Japan because of trouble with the North Koreans. The communists shot down an unarmed EC-121 reconnaissance aircraft on April 16, and by April 20, ENTERPRISE was off the shores of North Korea. Task Force Seventy-One was reformed with two other carriers and their supporting ships. It was



On January 14, 1969, while operating off Hawaii, disaster struck the ENTERPRISE when a rocket exploded among parked aircraft on the aft flight deck. Twenty-eight crewmen were killed and fifteen aircraft were destroyed before the fires could be brought under control. These two photographs were taken at Pearl Harbor where the ship returned for repairs. At left, workmen survey the damage to the aft sponson and ship's crane, and at right is a close-up view of the starboard Mark 25 Sea Sparrow missile launcher. Another photograph of the damage, taken from overhead while the ship was still at sea, can be found in the color section on page 36.

(BOTH USS ENTERPRISE)

not until May 31 that ENTERPRISE returned to Yankee Station to continue operations against the North Vietnamese. There she remained until July 1969, when she returned home to Alameda. Her fourth combat tour to Vietnam was shortened because she was ordered to Korean waters. Therefore, her air group's combat record totaled only 3779 missions and 4351 tons of ordnance expended against the communist forces.

When she returned to Alameda, it was time to recore her reactors for a second time. The constant repetition of combat tours and training over the previous four years also required that other major maintenance be conducted. To accomplish this, ENTERPRISE sailed around the Cape of Good Hope and headed once again for Newport News, Virginia, where she entered the yards for a major overhaul that was to last sixteen months. It wasn't until January 1971 that ENTERPRISE was at sea again to conduct sea trials. Once these were completed, she returned to the Pacific and embarked Carrier Air Wing Fourteen to begin workups for her fifth combat cruise to Vietnam. This cruise was to be her last on Yankee Station, and ENTERPRISE was on line off Vietnam when the last attacks were made against the communists by U.S. forces. Peace talks in Paris had reached an agreement which called for the removal of U.S. troops from Vietnam, but the communists were not about to keep one word of their part of the agreement. For ENTERPRISE, this

necessitated a sixth cruise to Vietnam in 1975 to cover the evacuation of Saigon as communist forces overran the city. The "flower children" of the 1960s, who had begged America to "give peace a chance," had their answer!

During this sixth deployment to Vietnamese waters, ENTERPRISE embarked VF-1 and VF-2, both equipped with the new F-14 Tomcat. It was the first time the Tomcat had been to sea as part of the air wing aboard a carrier.

With the war in Vietnam over, ENTERPRISE began a more routine schedule of conducting inspections, evaluations, qualifications, and training, while making additional cruises to WestPac. These all proved far less eventful than her combat cruises off Vietnam and her two assignments to Korean waters. By 1979, following her ninth major deployment, ENTERPRISE was again ready for a major overhaul. It was during this yard period, that lasted until early 1982, that the most noticeable changes were made to the ship's physical form. Most apparent among the changes was the removal of her beehive housing that contained ECM gear. The billboards of the SPS-32 and SPS-33 radars were also removed from her superstructure. The two Mark 25 Sea Sparrow launchers were removed and replaced with Mark 29 launchers. However, the starboard launcher was repositioned forward to a new sponson added to the bow. Contrary to



On January 15, 1979, ENTERPRISE entered the Puget Sound Naval Shipyard for a three-year overhaul and modernization. It was during this time that her distinctive beehive ECM structure and billboard radar panels were removed, and a more conventional mast and rotating radars were installed. Also installed were two advanced Mark 29 Sea Sparrow launchers that were located on the starboard side of the bow and the port quarter. The one on the port quarter can be seen with a protective white cover in this view. Their associated guidance radars were added to two corners of the superstructure. It appears that workmen built a temporary city on the flight deck during the overhaul.

(USS ENTERPRISE)



ENTERPRISE is seen here in her present configuration. She is undergoing an UNREP (underway replenishment) simultaneously with the battleship WISCONSIN, BB-64. Hoses between the ships transfer jet fuel, while CH-46 helicopters carry other supplies from the supply ship. An escort steams aft of the formation to pick up any sailors or aircrew in the unlikely event that someone falls overboard or a helicopter goes down.

(PH3 Welch, USS ENTERPRISE)

information in almost every other reference source on ENTERPRISE, no launcher was placed on the starboard quarter. However, one may be added during the 1990-1993 yard period. The port Mark 29 launcher was placed in the same position as the former Mark 25 launcher on that side of the ship. Two guidance radars for each of these launchers were placed on two corners of the superstructure. The two for the aft port launcher were located on the aft port corner of the superstructure, while the two for the starboard launcher were placed on the forward starboard corner. Three Mark 15 Phalanx 20mm Close-In Weapon Systems (CIWS) were also installed as protection against anti-ship missiles.

Inside the carrier, the nuclear reactors were all completely renovated. Berthing and dining facilities were modernized. New rotating radars replaced the SPS-32 and SPS-33 systems which had proven troublesome. The radars which were installed were the same major radars used on most of the other carriers in the Navy. When she rejoined the fleet, her shape had been altered, but it was

still distinctive and unique. There was no mistaking ENTERPRISE for any other carrier in the Navy.

In 1982, ENTERPRISE once again picked up the routine of training, evaluating, qualifying, and making deployments to the Pacific and Indian Oceans. These were uneventful for six years. In April 1986, she became the first nuclear-powered aircraft carrier to transit the Suez Canal, enroute to the troubled waters off Libya.

It was in April 1988, during her thirteenth major overseas deployment, that ENTERPRISE again saw combat. She was assigned to escort duties for reflagged Kuwaiti oil tankers in the Persian Gulf while stationed in the North Arabian Sea. During Operation Praying Mantis, a "measured response" to the repeated mining of free Gulf waters and the mine hit upon the USS SAMUEL B. ROBERTS, ENTERPRISE and Carrier Air Wing Eleven struck a decisive blow to the Iranian navy in what has been called the most intensively fought naval battle since the Korean campaign. One Iranian "SAAM" class frigate



After it had fired on American aircraft, this Iranian "SAAM" class frigate was set ablaze by attacks from aircraft of Carrier Air Wing 11 embarked aboard USS ENTERPRISE. It was later sunk by subsequent attacks by the ENTERPRISE's aircraft and the destroyer USS STRAUSS, DDG-16. A second frigate was disabled shortly thereafter and left dead in the water. The action took place on April 18, 1988, in the Persian Gulf.

(USS ENTERPRISE)

was set ablaze and finally sunk after attacks by CVW-11 and the guided-missile destroyer USS STRAUSS. A second frigate was disabled and left dead in the water.

ENTERPRISE made a world cruise in 1989-90, traveling 42,240 nautical miles in the process. The following table summarizes some of the work accomplished by various departments aboard the ship, and exemplifies the tremendous amount of work it takes to operate an aircraft carrier.

DEPARTMENT	WORK ACCOMPLISHED
Navigation	132 charts with 1,780 corrections
Air	7901 launches 17,791 flight hours logged
Engineering	44,020,000 gallons of fresh water produced from salt water replaced 9000 light bulbs received 1,260,000 phone calls
AIMD	used 38.6 miles of computer paper processed 79,677 items changed 850 aircraft tires
Deck	onloaded 15,106,789 gallons of jet fuel completed 39 underway replenishments
Executive	processed 3,625,436 pounds of incoming mail, and 172,644 pounds of outgoing mail sold \$2,369,652 worth of money orders and \$60,455 worth of stamps the print shop used 4,785,000 sheets of paper
Supply	washed 760,000 pounds of laundry served 18,000 pounds of food per day totaling 2,464,000 meals food served included: 2,288,000 eggs 1,200,000 hamburgers 1,377,428 cans of soda
Dental	extracted 1,519 teeth had 10,250 appointments

Medical

treated 24,777 crewmen
filled 33,342 prescriptions
administered 7,286 immunizations

Reactor

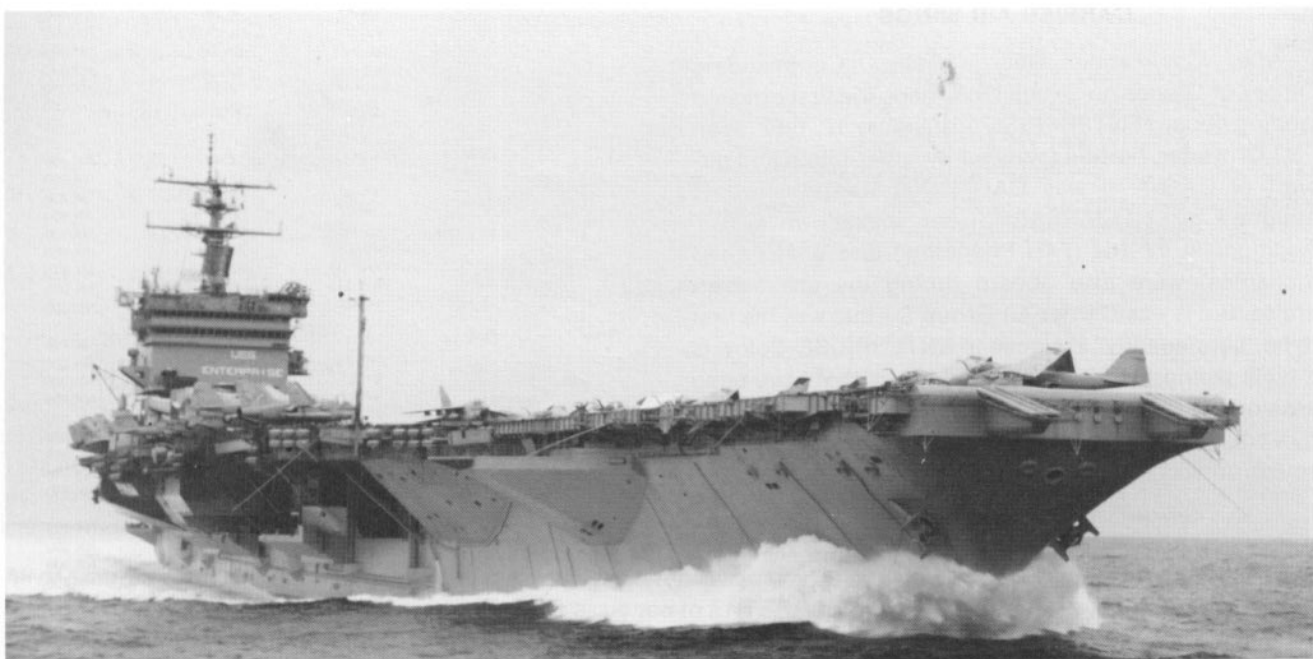
completed 38,574 man-hours of training

ENTERPRISE entered the yards for an extensive overhaul in the fall of 1990. She is expected to return to service in early 1993. When she does, her new reactor cores will power her for twenty years. She will then be fifty years old and ready for retirement. She will have served far longer than her designers and builders ever expected, and will have returned to the American taxpayer good service for their dollars in defending freedom and protecting the peace. Since her commissioning, she has already steamed nearly 600,000 miles, or a distance equivalent to twenty times around the world. On her flight deck she has completed 570,000 launches and recoveries.

During her fourteen major overseas deployments, ENTERPRISE has received the following awards: National Defense Service Medal, Navy Expeditionary Medal (Four Awards), Armed Forces Expeditionary Medal (Five Awards), Atlantic and Pacific Battle "E" Award (Four Awards), CNO Marjorie Sterrett Battleship Fund Award (Two Awards), Vietnam Service Medal (Five Awards), Navy Unit Commendation (Three Awards), Vietnam Armed Forces Meritorious Unit Citation, Meritorious Unit Commendation (Three Awards), Joint Meritorious Unit Award, Humanitarian Service Medal.

ENTERPRISE FACTS

ENTERPRISE is indeed a floating city. Her enormous dimensions are not fully understood simply by quoting numbers. Some of the following facts help the layman understand just how big she is. Horizontally, she is as tall as a twenty-five story building. If set vertically, she would measure 200 feet taller than the famous Trans-American building which is the tallest structure in San Francisco, or 125 feet taller than the Eiffel Tower in Paris, France. The height of each propeller is twenty-one feet, or equivalent to the height of a two-story home. Her four and one-half acre flight deck could contain four football fields, sixty-nine tennis courts, or five city blocks. The several million blueprints used in the construction of ENTERPRISE were drawn by 915 designers and consisted of 16,100 drawings. Laid end-to-end, they would form a pathway thirty inches wide for 2,400 miles. Building materials originally received for ENTERPRISE at Newport News Shipyard would fill 3,000 railroad cars making a train thirty miles long. There are about thirty-seven miles of ventilation and heating ducts aboard the ship, and 625 miles of electrical cables. She has over 1,000 telephones and 3,000 separate compartments and spaces.



Churning up a huge bow wave, ENTERPRISE demonstrates her power during a high speed run. Official unclassified data gives the top speed of American carriers as thirty-"plus" knots, but it is evident that the "plus" is quite considerable! (USS ENTERPRISE)

ENTERPRISE STATISTICS

Length overall	1,123 feet
Length at waterline	1,040 feet
Maximum width including catwalks	257 feet
Beam at waterline	133 feet
Depth of hull	99.5 feet
Height (keel to top of mast)	250 feet
Area of flight deck	4.47 acres
Maximum dimensions of flight deck	1,079 X 235.3 feet
Maximum dimensions of hangar deck	732 X 96 feet
Height of hangar deck	25 feet
Displacement (full load)	90,000 tons
Number of reactors	8
Shaft horsepower	280,000
Maximum speed	35+ knots
Number of propellers	4
Weight of each propeller	32 tons
Diameter of each propeller	21 feet
Number of rudders	4
Weight of each rudder	35 tons
Number of catapults	4 X C 13 steam
Number of arresting cables	4
Number of aircraft elevators	4
Area of each aircraft elevator	approximately 4,000 square feet
Number of anchors	2
Weight of each anchor	35 tons
Length of each anchor chain	1,080 feet
Crew (including air wing)	5,500
Missile armament	2 X Mark 29 Sea Sparrow launchers
Guns	3 X Mark 15 Phalanx 20mm CIWS
Rockets	Mark 36 RBOC
Aircraft	Approximately 85

CARRIER AIR WINGS

After Commander George Talley, Commanding Officer of Carrier Air Group One, made the first arrested landing aboard ENTERPRISE on January 17, 1962, in an F8U Crusader, he was followed by other pilots and aircraft of CAG-1. It was CAG-1 that was temporarily assigned to ENTERPRISE for her shakedown cruise. Additionally VF-102 (F4H Phantoms) and VAH-7 (A3J Vigilantes) were also aboard during the shakedown cruise. But it was Carrier Air Group Six that was the first to be "permanently" assigned to ENTERPRISE. Below is a table listing the air groups and wings that have been assigned to ENTERPRISE over the years. An asterisk (*) by a squadron indicates that only a detachment from that squadron was assigned.

Date	Carrier Air Group or Wing	Squadron	Aircraft Type	Tail Code & Modex Sequence					
8/62	CVG-6	VF-102	F-4B	AF 100	VA-27	A-7E	NK 400		
		VF-33	F-8E	AF 200	VA-196	A-6A/KA-6D	NK 500		
		VA-66	A-4C	AF 300	RVAH-5	RA-5C	NK 600		
		VA-65	A-1H	AF 400	VAQ-130*	EA-3B	NK 610		
		VA-64	A-4C	AF 500	VAW-113	E-2B	NK 010		
		VA-76	A-4C	AF 600	HC-1*	SH-3G	NK 000		
		VAH-7	A-5A	AF 700					
		VAW-12*	E-1B	GE 800					
		VFP-62*	RF-8A	GA 900					
		HU-2*	HUP-2	UH 25					
2/63	CVG-6	VF-102	F-4B	AE 100	9/72	CVW-14	VF-143	F-4J	NK 100
		VF-33	F-8E	AE 200			VF-142	F-4J	NK 200
		VA-66	A-4C	AE 300			VA-97	A-7E	NK 300
		VA-65	A-1H	AE 400			VA-27	A-7E	NK 400
		VA-64	A-4C	AE 500			VA-196	A-6A/KA-6D	NK 500
		VA-76	A-4C	AE 600			RVAH-13	RA-5C	NK 600
		VAH-7	A-5A	AE 700			VAQ-131	EA-6B	NK 610
		VAW-12*	E-1B	AE 800			VAW-113	E-2B	NK 010
		VAW-33*	EA-1E	GD ---			HS-2*	SH-3G	NK 000
		VFP-62*	RF-8A	GA 900					
		HU-2*	HUP-2	UH 25					
6/65	CVG-9	RVAH-7	RA-5C	NG 100	9/74	CVW-14	VF-1	F-14A	NK 100
		VF-92	F-4B	NG 200			VF-2	F-14A	NK 200
		VA-93	A-4C	NG 300			VA-97	A-7E	NK 300
		VA-94	A-4C	NG 400			VA-27	A-7E	NK 400
		VA-76	A-4C	NG 500			VA-196	A-6A/KA-6D	NK 500
		VF-96	F-4B	NG 600			RVAH-1	RA-5C	NK 600
		VA-36	A-4C	NG 700			VAQ-134	EA-6B	NK 620
		VAH-4*	A-3B	ZB 110			VAW-113	E-2B	NK 010
		VAW-11*	E-1B	RR 000			HS-2	SH-3G	NK 720
		HC-1*	UH-2A	UP 30					
11/66	CVW-9	RVAH-7	RA-5C	NG 100	4/78	CVW-14	VF-1	F-14A	NK 100
		VF-92	F-4B	NG 200			VF-2	F-14A	NK 200
		VA-113	A-4C	NG 300			VA-97	A-7E	NK 300
		VA-56	A-4C	NG 400			VA-27	A-7E	NK 400
		VA-35	A-6A	NG 500			VA-196	A-6A/KA-6D	NK 500
		VF-96	F-4B	NG 600			RVAH-1	RA-5C	NK 600
		VAW-11*	E-2A	NG 600			VAQ-134	EA-6B	NK 620
		VAH-2*	A-3B	RR 750			VAW-113	E-2B	NK 010
		HC-1*	UH-2A	UP 30			HS-2	SH-3G	NK 720
7/67	CVW-9	RVAH-1	RA-5C	NG 100	9/82	CVW-11	VF-114	F-14A	NH 100
		VF-92	F-4B	NG 200			VF-213	F-14A	NH 200
		VA-113	A-4C	NG 300			VA-22	A-7E	NH 300
		VA-56	A-4C	NG 400			VA-94	A-7E	NH 400
		VA-35	A-6A	NG 500			VA-95	A-6E/KA-6D	NH 500
		VF-96	F-4B	NG 600			VAW-117	E-2C	NH 600
		VAW-112	E-2A	NG 700			VAQ-133	EA-6B	NH 604
		VAH-2*	KA-3B	ZA ---			HS-6	SH-3H	NH 610
		VAH-13*	EA-2B	VR ---			VS-21	S-3A	NH 700
		HC-1*	UH-2C	UP ---					
1/69	CVW-9	VF-96	F-4J	NG 100	5/84	CVW-11	VF-114	F-14A	NH 100
		VF-92	F-4J	NG 200			VF-213	F-14A	NH 200
		VA-146	A-7B	NG 300			VA-22	A-7E	NH 300
		VA-215	A-7B	NG 400			VA-94	A-7E	NH 400
		VA-145	A-6A	NG 500			VA-95	A-6E/KA-6D	NH 500
		RVAH-6	RA-5C	NG 600			VAW-117	E-2C	NH 600
		VAQ-132	KA/EA-3B	NG 610			VAQ-133	EA-6B	NH 604
		VAW-112	E-2A	NG 010			HS-6	SH-3H	NH 610
		HC-1*	UH-2C	UP 000			VS-21	S-3A	NH 700
6/71	CVW-14	VF-143	F-4J	NK 100	10/87	CVW-11	VF-114	F-14A	NH 100
		VF-142	F-4J	NK 200			VF-213	F-14A	NH 200
		VA-97	A-7E	NK 300			VA-22	A-7E	NH 300

CVW-11, comprised of the squadrons shown in the 10/87 listing, was the air wing assigned to ENTERPRISE until she returned to Norfolk and Newport News for her overhaul that began in late 1990.

EMBARKED AIRCRAFT



All of a carrier's offensive striking power, and most of its defensive power, is provided by its assigned air wing. Over her thirty years of service, several air wings have been assigned to ENTERPRISE, and every tailhook aircraft from the A-1 Skyraider to today's F-14 Tomcats and F/A-18 Hornets have operated from her flight deck. Prior to her extended overhaul, which began in 1990, CVW-11 was the most recent air wing assigned to ENTERPRISE. One of that wing's two fighter squadrons was VF-114, and two of the Aardvark's F-14 Tomcats are shown here. The near aircraft is in the tactical paint scheme with low visibility markings, while the Tomcat in the background is in the overall gull gray scheme with colorful markings.

(USS ENTERPRISE)



The second fighter squadron in CVW-11 was VF-213, which was named the Black Lions. Three of their Tomcats are shown here in the tactical paint scheme.

(USS ENTERPRISE)



CVW-11 still had A-7E Corsairs in two of its attack squadrons when last deployed with ENTERPRISE, but the A-7s will likely be replaced with the F/A-18 Hornet by the time ENTERPRISE returns to sea. However, Hornet squadrons have already operated from ENTERPRISE during carrier qualifications as illustrated in these two photographs. In the photograph at right, note the single-seat Hornet in the foreground, and the two-seater in the background.



A-7 Corsairs have probably operated with ENTERPRISE's air wing for the last time, since they will have been replaced in the active inventory by the F/A-18 Hornet when ENTERPRISE returns to service. One of the two A-7E squadrons to operate from ENTERPRISE with CVW-11 was VA-94. Two of the Mighty Shrikes' Corsairs are shown here with tail hooks down prior to landing. The other A-7 squadron assigned to ENTERPRISE at this time was the Fighting Redcocks of VA-22.
(USS ENTERPRISE)



The Sky Knights of VA-95 were the all weather attack squadron assigned to CVW-11 and ENTERPRISE. They flew the A-6E TRAM Intruder, one of which is shown in the photo at left while taxiing forward after landing. The subdued markings on the tactical scheme are almost impossible to see. VA-95 also flew the KA-6D tanker version of the Intruder. One of these tankers can be seen in the photo at right, and is being positioned on cat three. Tankers usually carry the older gray over white scheme with colorful markings.
(Left author, right Rogers)



The Black Ravens of VAQ-135 flew the four-seat EA-6B Prowler electronics warfare aircraft with CVW-11. One of its aircraft is illustrated here in the markings last used before ENTERPRISE entered her yard period in 1990.
(USS ENTERPRISE)



As part of CVW-11, the Fighting Redtails of VS-21 flew the S-3A Viking anti-submarine warfare aircraft. At left, one of their S-3As is shown ready for launch from cat four, while at right, another is about to be moved from its spot on the flight deck to a position further aft.
(Both Rogers)

The E-2C Hawkeye was flown by VAW-117's Night Hawks. This aircraft provides radar coverage and warning beyond the carrier's own shipboard systems, and has a command and control function, directing fighters from the air wing to intercept points with hostile or unknown targets.

(USS ENTERPRISE)



The SH-3H Sea King helicopter squadron performs important missions including search and rescue, anti-submarine warfare, and passenger and cargo transport. At the time these photographs were taken in July 1990, HS-15 was temporarily assigned to ENTERPRISE. However, the Red Lions are usually assigned to the air wing aboard USS FORRESTAL, CV-59. HS-6 was the helicopter squadron assigned to CVW-11 and ENTERPRISE just prior to her 1990-1993 refit.

SHIP'S DETAILS

ANCHORS & FOC'SLE



ENTERPRISE has two anchors, each weighing thirty-five tons. They are located on either side of the bow, and are raised and lowered from the foc'sle which is located inside the enclosed bow. The starboard anchor is visible in the raised position in this photograph, and the port anchor chain can be seen leading to the anchor which has been dropped while the ship is in port. One anchor is often dropped when the ship is pierside, even though it is also secured with numerous mooring lines.



Details of the port anchor chain are shown here. Each link in the chain weighs almost four hundred pounds.



The interior of the foc'sle is shown in this view, which looks aft from the forward-most end.

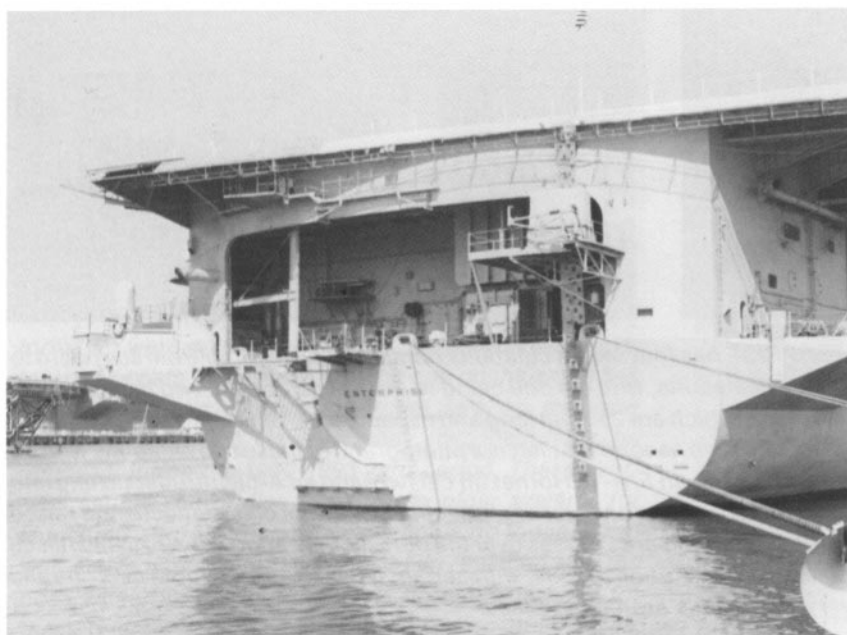


This view looks forward along the starboard chain toward the front of the foc'sle.



The anchor chains are pulled up into the ship and move aft. They then turn almost 160 degrees and go down to a lower level where most of the chains are stored when the anchors are raised. Each chain is 1,080 feet long, and could not be contained within the foc'sle itself. The two openings leading down to the storage area can be seen in the foreground of this view. When this photograph was taken, the port anchor was lowered, as seen in the top left photograph, and the starboard anchor was fully raised.

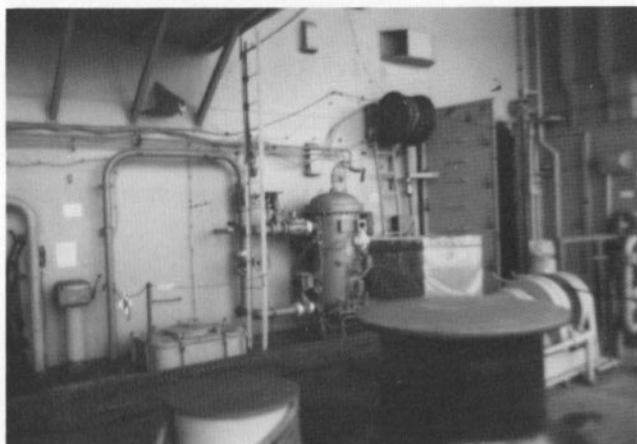
FANTAIL



ENTERPRISE has an enclosed fantail which has changed very little during her operational life. The Phalanx gun system on the port corner and azimuth dome for the SPN-41 automatic landing control radar have been added over the years. A jet engine test stand area has been added on the centerline, and projects out above the name **ENTERPRISE**.



This photograph was taken on the fantail and looks from port to starboard. The supporting platform for the SPN-41 azimuth dome is visible in the background.



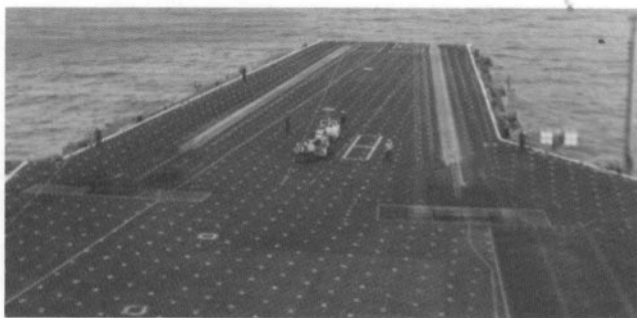
Another view of the fantail is provided here. The large open door leads to the area where jet engines are maintained. They can be wheeled out through this door and run up on a test stand on the fantail. The jet exhaust is aimed out behind the ship. The deck of the fantail is at the hangar deck level.



The light strip that extends from the flight deck down to the waterline is painted yellow, and has a vertical row of lights in it that continue down the centerline of the landing area on the flight deck. They are to help the pilot line up his approach at night. The azimuth dome of the SPN-41 automatic landing approach radar and its supporting platform can be seen in better detail in this close-up.

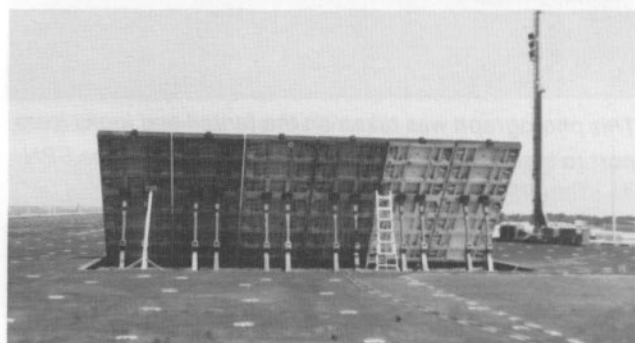
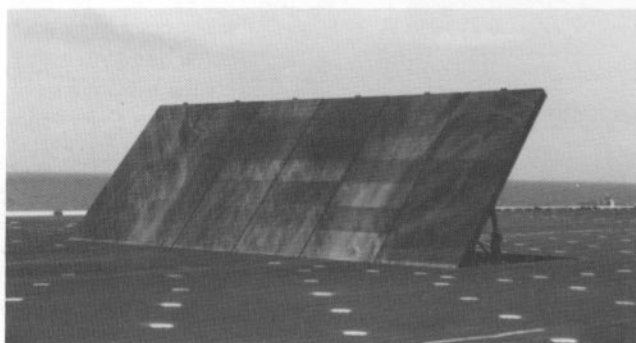
CATAPULTS

CATS 1 & 2

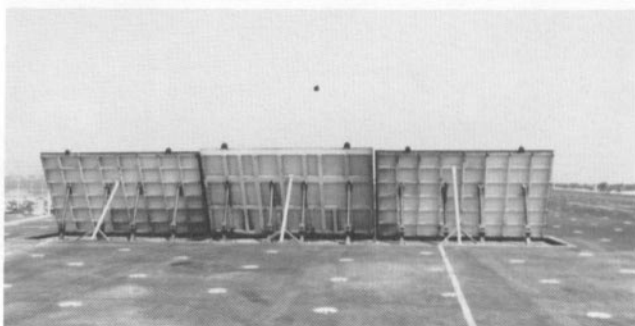


Like all super carriers in the U.S. Navy, ENTERPRISE has four steam catapults numbered one to four from starboard to port. Therefore, cats one and two are the two bow catapults, with cat one being to starboard, and cat two being to port. All four catapults in ENTERPRISE are the C-13 type, which are 250 feet long and capable of accelerating a 78,000 pound aircraft from a standing start to 160 miles per hour in two seconds. At left is a photograph of these two catapults with no aircraft in position, and at right is a photograph showing an F/A-18 Hornet on cat two, and an A-6E Intruder taxiing into position on cat one. It is important to note that only the center and starboard sections of the jet blast deflector are raised behind cat two. This is because the foul line for the landing area passes over the port section, and, if it were in the raised position, it would interfere with and prevent recovery operations. Thus, with certain types of aircraft, both cats one and two can be used for launches while recovery operations are taking place.

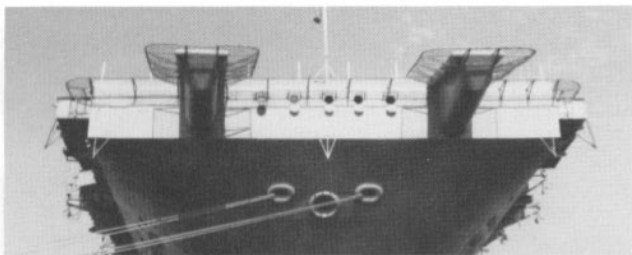
The jet blast deflectors (JBDs) behind cats one and two are shown here in the raised position from the front. The JBD behind cat three can be seen in the distance between them. Note that the JBD behind cat one is taller than the one behind cat two. It is also water cooled, allowing for launches in after-burner.



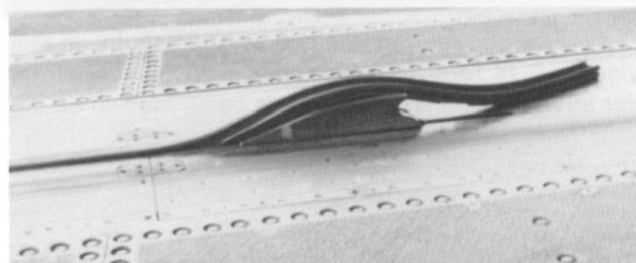
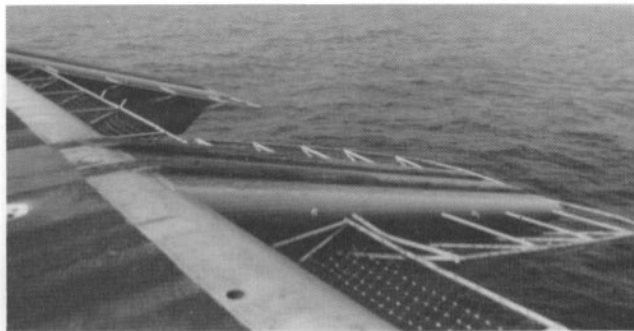
These two views show the details of the JBD for cat one. Note that it is in six separate sections which can be operated separately. The photograph at left was taken from in front and inboard of the JBD, while the photograph at right was taken from directly behind the deflector.



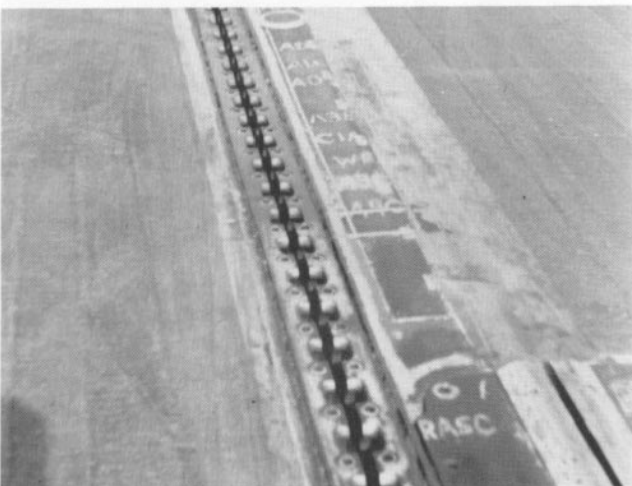
The smaller JBD behind cat two is shown in these two photos. It has only three sections which can be operated separately. The view at left was taken from in front of the JBD, while the view at right was taken aft of the deflector.



Above left and right: When ENTERPRISE was commissioned, she had three catapault overruns or bridle arrestors. Two were on the bow, and a third was on the angle, forward of cats three and four. The one on the angle has long since been removed, but the two on the bow remained as of 1990. However, they are scheduled to be removed during the 1990-1993 yard period. These overruns caught the bridles used in the older systems for launching aircraft. Since this system is no longer used with active fleet aircraft, and has been replaced with the nose wheel tow system, there is no longer a need for these bridle catchers which were also known as horns.



This is the catapault shuttle positioned at the forward end of cat one. A long piece of rubber stripping is placed in the catapault's slot when not in use to protect it from the elements. When launching aircraft, the shuttle runs the length of the slot pulling and accelerating the aircraft in the process.



The bridge launch system also had a system of cleats aft of the catapault into which the holdback cable was attached with a breakable bolt. Note the types of aircraft scratched into the metal next to the appropriate cleat. Which cleat was used depended on the length, and therefore the type, of aircraft.



This view looks forward along cat one from the hook-up end. The protective rubber strip is in the slot.



Cat two is shown here from the forward end looking aft. The rubber strip has been removed from the slot, and it can be seen on the flight deck next to the catapault. The slot is clearly visible in this view.

CATS 3 & 4



Cats three and four are the two waist catapults. In this view, an F-14 Tomcat is being positioned for launch from cat three, and an A-7E Corsair is being readied on cat four. Note that the JBD for cat four is much smaller than the one behind cat three since cat four is so close to the edge of the flight deck. (Rogers)



Cat four is shown here from the aft end looking forward. Its cleats are in the foreground. This catapult is just far enough inboard of the port catwalk to allow the left main landing gear of larger aircraft to be safely on the flight deck during launch.



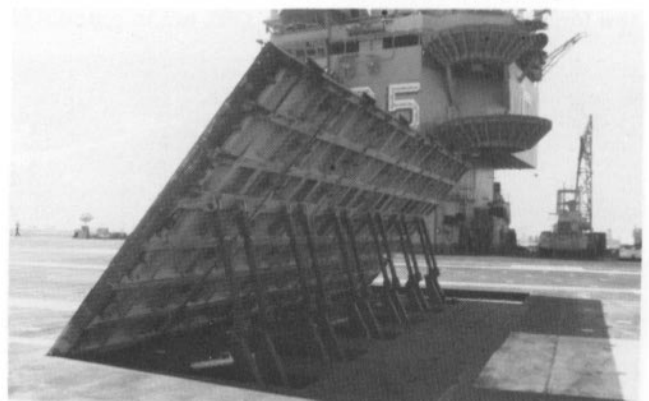
These two photographs illustrate the details of the JBD behind cat three. It is the same as the one behind cat one, being larger, having six sections, and being water cooled to allow launches in afterburner.



This close-up shows details of the nose wheel tow system used for launching aircraft. A launch bar extends from the nose wheel strut to the catapult shuttle, and the holdback bar is aft of the strut. It is almost obscured by steam in this photograph. (Rogers)



The two JBDs for the waist catapults are seen here. The larger one for cat three is in the raised position, and the smaller one for cat four is shown lowered in the background. The JBD for cat four is all one piece, rather than having separate sections like the other three deflectors.



FLIGHT DECK DETAILS



Metal chutes like this one have been placed at various locations around the flight deck. They are painted bright yellow, and have red and yellow stripes with a black bomb painted on the flight deck next to their locations. These chutes are for throwing ordnance and other explosives overboard in the event of a fire. Trying to throw heavy ordnance over the catwalks and safety nets without these chutes proved very difficult during the fire aboard FORRESTAL in 1967. (See Detail & Scale Series, Volume 36.)



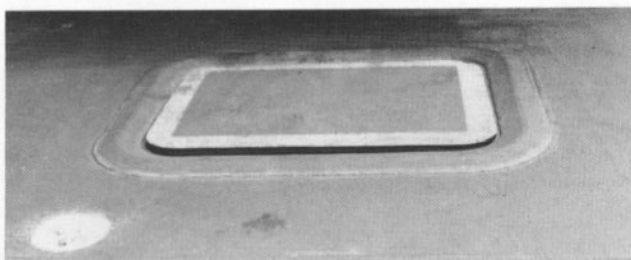
Two armament elevators are located forward on the flight deck between catapults one and two. They are shown here in the closed position.



These two views show more details of the aft armament elevator.



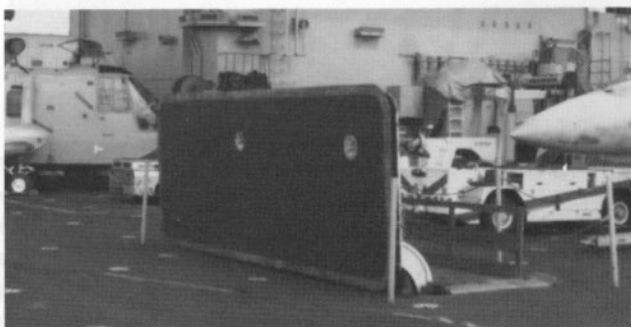
Small hinged covers such as this one mark the locations on the flight deck for electrical power connections for aircraft. After opening the cover, crewmen can take one end of a long cable and plug it into the aircraft to provide external electrical power from the ship's own electrical system.



This rectangular hatch in the flight deck is located immediately abaft the superstructure. Beneath it is the room where the nylon crash barrier is stored. When needed, this hatch is opened, and the crash barrier is erected on the flight deck to recover an aircraft that cannot be brought aboard with a normal arrested recovery.



Another armament elevator is located further aft near the superstructure and number three elevator. It is shown here in the raised and open position. Note that the flight deck portion is not part of the elevator itself, but is a hinged cover.



ARRESTING GEAR



The moment of truth in an arrested recovery is captured in this dramatic photograph. Tires smoke as they hit the deck and the pilot applies full power. The tail hook engages one of the four cables, and the arresting gear brings the aircraft to a complete stop in less than two seconds. If the tail hook fails to engage a cable, the aircraft, with full power already applied, flies off of the angled portion of the flight deck and comes around to make another attempt. If the aircraft misses all of the cables, it is called a bolter. A perfect recovery is when the tail hook catches the number three cable.

(PH3 Saunders, USS ENTERPRISE)

This view looks straight down the centerline stripe in the landing area. It is painted in alternating yellow and white sections, while the double-striped outer lines are all white.



These two photographs show the fair lead sheaves for one of the arresting cables. The sheaves are the round white part of the gear, and are seen here in the retracted position. The part of the cable that goes down to the arresting gear engine is called the purchase cable, and the portion that stretches across the flight deck is known as the cross-deck pendant. The cross-deck pendant is attached to the purchase cables at each end by a terminal, one of which is visible in each of these photographs. In the photograph at right, the rectangular terminal impact pad can be seen in the background. The dashed line seen in the photograph at right is one of the foul lines, and everything must be behind this line in order for the deck to be declared ready for recovery.

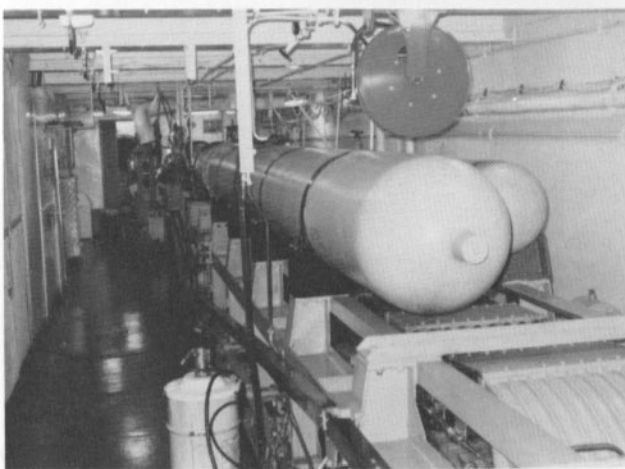
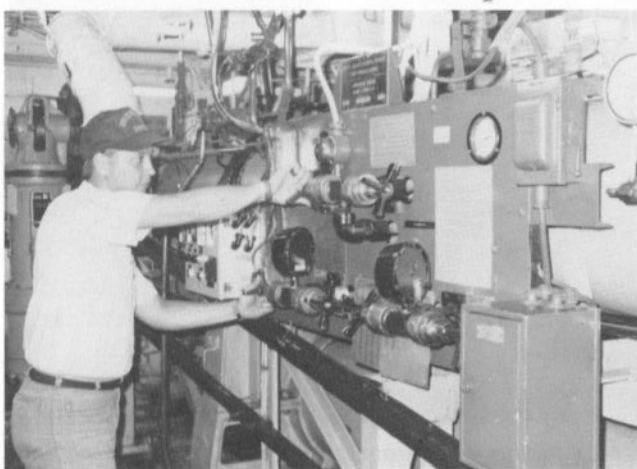
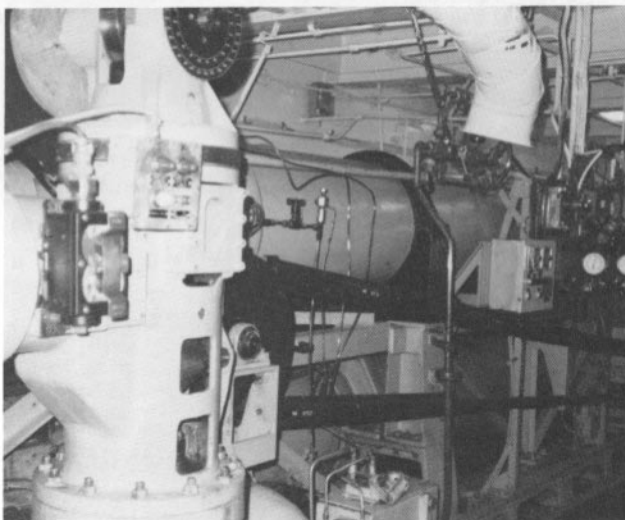


This view looks from the starboard fair lead sheave on the number four cable toward the port side. Cables are held up off the deck by flat leaf springs, one of which can be seen on the first white line in the background. Again, the fair lead sheave is in the retracted position in this photograph.

Right: The starboard end and some of the controls and gauges of one of the arresting gear engines are shown here. There are four arresting gear engine rooms, one for each cable.

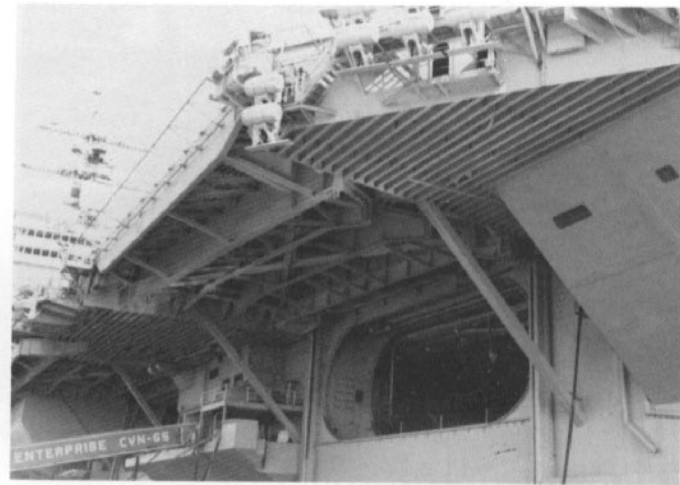
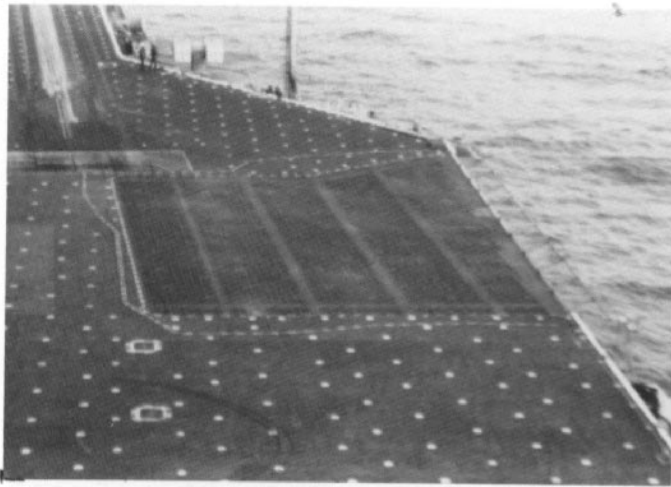


The port side terminal impact pad for the number four cable is shown here. It is a slightly raised, rubberized, padded area on the deck. It takes the impact of the terminal on the deck when the cable is snatched up by the arresting hook on the aircraft.

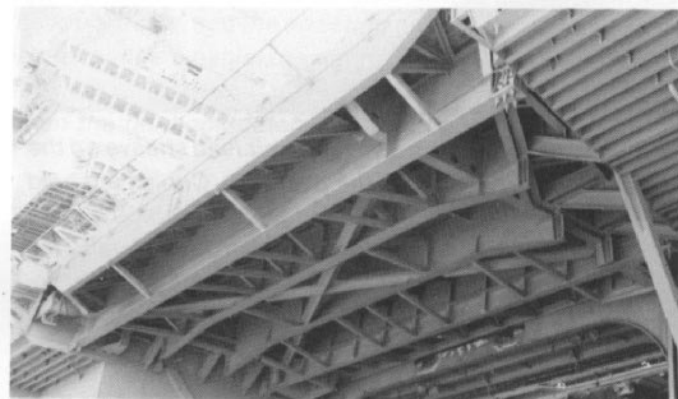
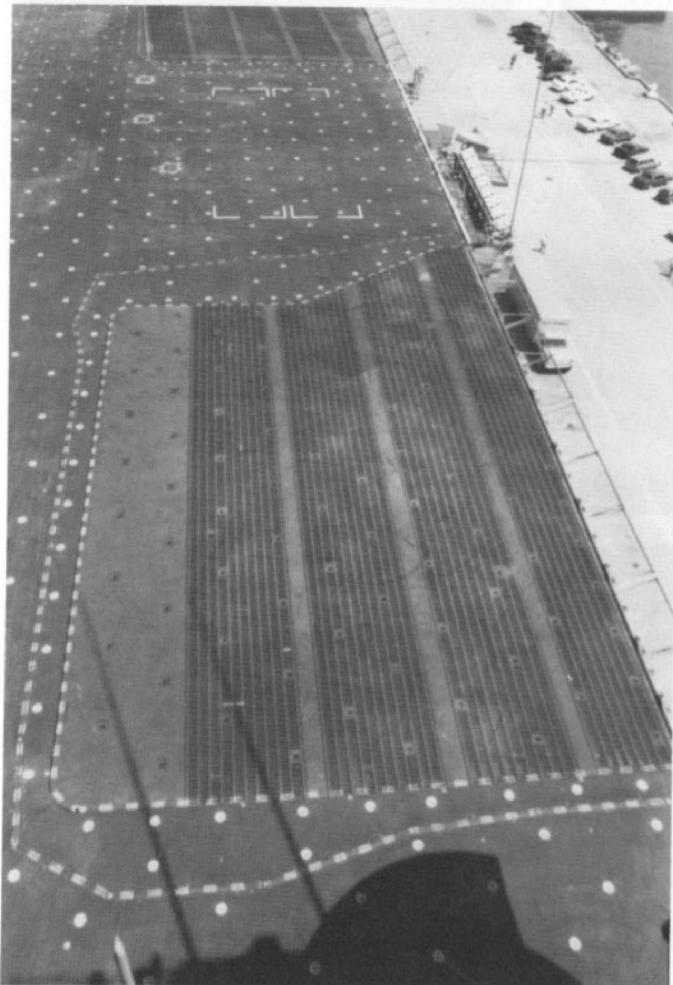


At left is a photograph of a crewman at the controls of one of the arresting gear engines, and at right is a view of the entire arresting gear engine room as viewed from the port side looking to starboard. These four rooms are on the gallery deck just below the flight deck.

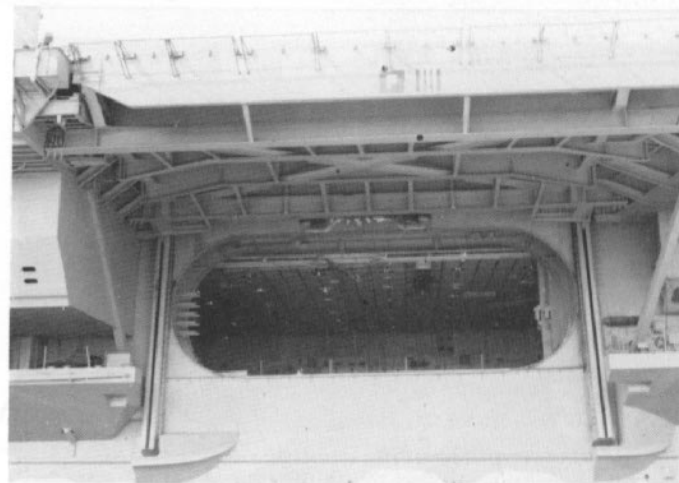
ELEVATORS



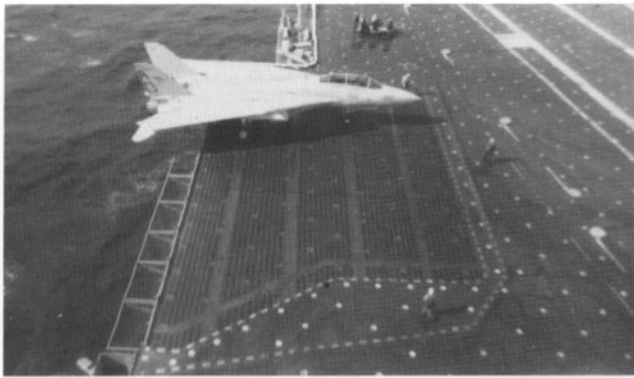
ENTERPRISE has four deck-edge aircraft elevators placed in the standard arrangement as on all super carriers except the four ships of the *FORRESTAL* class. Three are on the starboard side, with two being forward of the superstructure, and one being aft. They are numbered one, two, and three, from the forward elevator aft. Elevator number four is the only one on the port side, and it is located aft of the two waist catapults. These elevators are quite unique, in that they are lightweight aluminum grating for the most part. A person can stand on the elevator and look through the grating down to the water in most places. Solid strips run through the grating in several places. At left is a photograph of elevator number one as seen from the superstructure. Two sets of yellow and red dashed lines mark the location of the elevator. The inner line outlines the elevator itself, and the outer line indicates the location of the retractable fence that raises when the elevator is in the lowered position. At right is the supporting framework beneath elevator number one.



Details of the framework beneath the number two elevator are revealed here.



At left is elevator number two as seen from above. Note that its solid areas are different from those on elevator number one, with its inner-most portion being all solid. However, most of the elevator is still the lightweight grating used on the other elevators. At right is the opening to the hangar deck for elevator number two. Again, the elevator guides and supporting framework are visible.



Elevator number three is aft of the superstructure on the starboard side. Each elevator is over 4000 square feet in area, and the Tomcat on this elevator helps illustrate its size. On all carriers subsequent to the FORRESTAL class, elevators have had a wedge or triangular-shaped extension on the outer edge to facilitate aircraft handling. This extension can be seen in the foreground of this photograph. Rather than being rectangular, the outer half of the forward edge of the elevator (to the bottom of this picture) is angled to make the elevator larger at its outer edge than at its inner edge. Again, the two yellow and red dashed lines around the elevator are visible in this photograph.



This view shows the number three elevator in the lowered position.



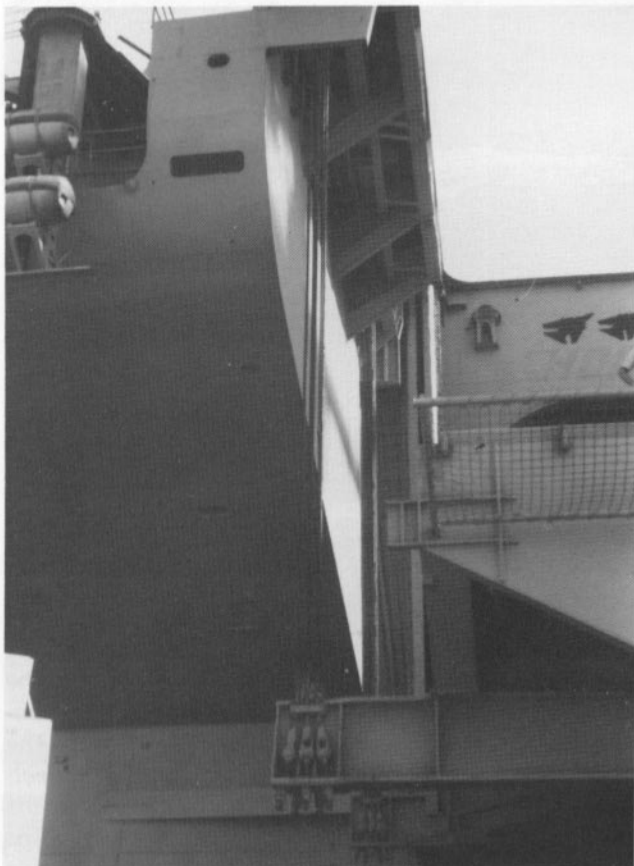
Four sets of cables move and support each of the elevators. The two aft sets of cables can be seen in this photograph.



The locations of the forward two sets of cables can be seen here.



The aft facing of the elevator is illustrated in this view. Again note where the cables are attached to the supporting beam of the elevator.



Details of the outer aft cables and how they are connected to the elevator are shown in this view. The connecting point for the inner aft cables can be seen in the background next to the hull.



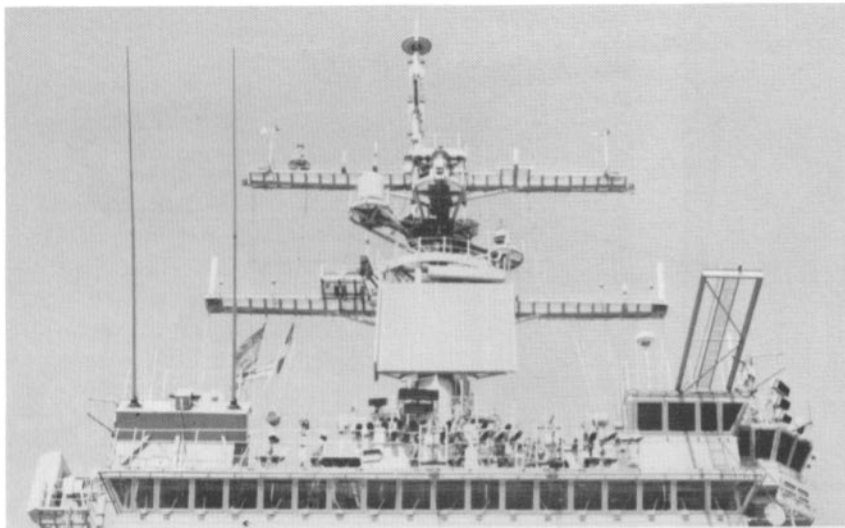
This is the number four elevator as viewed from the superstructure. Note its location relative to the LSO platform and arresting cables. Like the three on the starboard side, it is mostly aluminum grating with four solid stiffener or strength beams across it. It also has the wedge shaped extension on its forward edge. All four elevators can be used during air operations.

An F-14 Tomcat is shown here as it is being positioned on the number four elevator during air operations. Elevators are usually in the raised position when the carrier is at sea unless they are moving aircraft between decks. While raised, they provide valuable parking area for the aircraft on the flight deck.

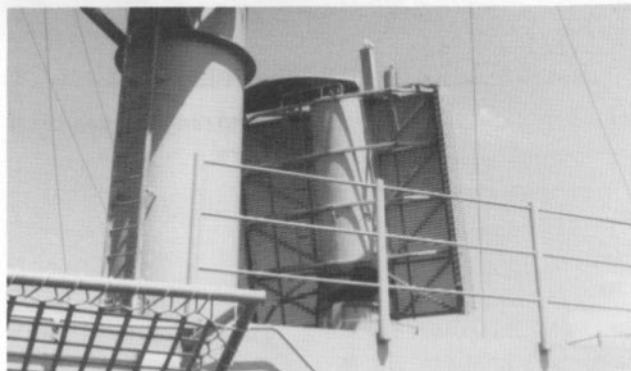
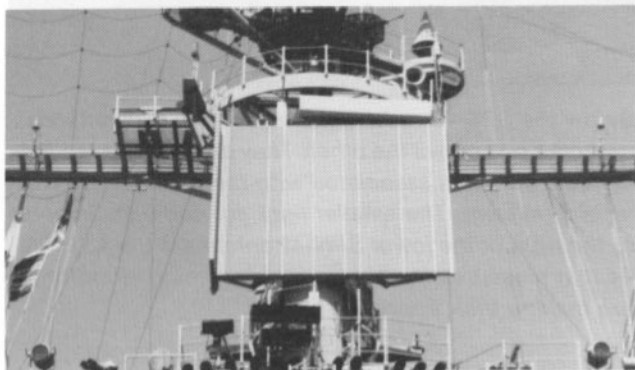


This is the number four elevator as viewed from alongside of the ship. The large doors for the opening to the hangar deck are partially closed. The superstructure and mast seen projecting above the flight deck belong to the battleship WISCONSIN, which was berthed next to ENTERPRISE when this photograph was taken.

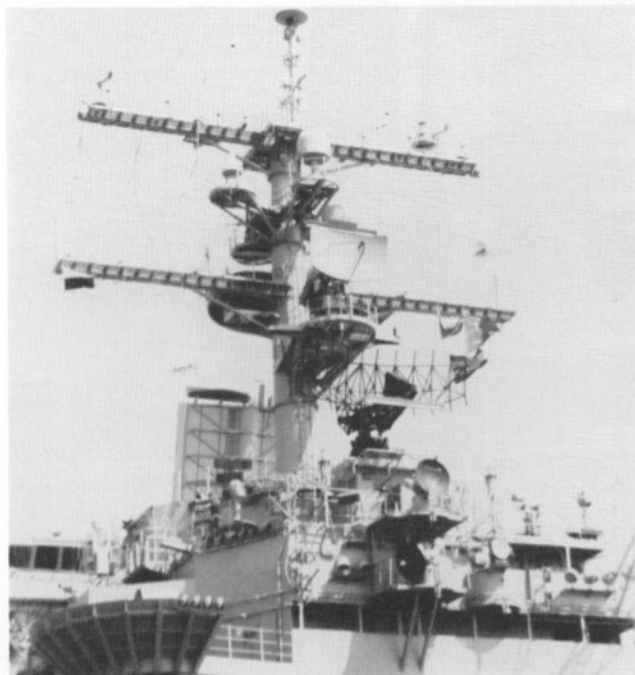
PRIMARY RADARS AND MAST



After her unique billboard radar installation was removed during the 1979-1982 refit, ENTERPRISE was fitted with the same standard rotating radars found on other carriers in the U.S. Navy. A tall mast with two yardarms was located in the center atop the superstructure. This front view shows the mast, its two yardarms, and the AN/SPS-48C air search radar antenna located forward on the superstructure. The SPS-10 surface search radar is sponsored out from the mast, and appears just above the SPS-48C in the photograph.



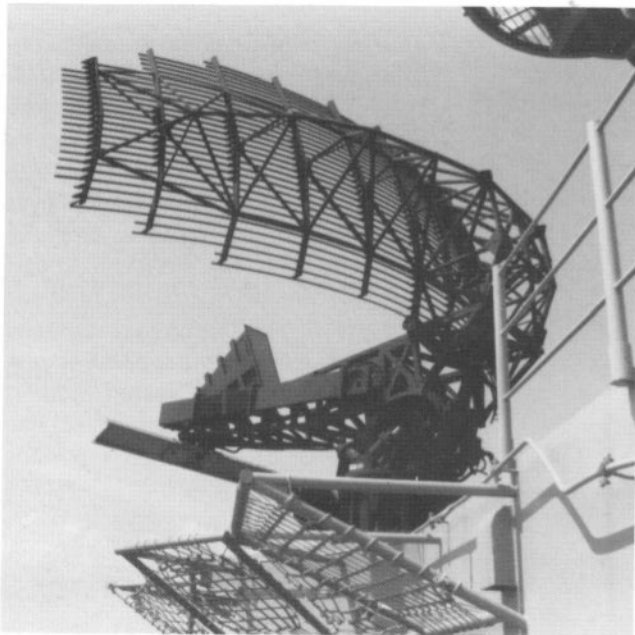
These close-up photographs show details of the AN/SPS-48C air search radar. The view at right shows the front of the radar, and the one at right shows the rear and a portion of the supporting pedestal.



The mast is shown from behind in this view. The largest antenna seen sponsored out from the mast is for the SPN-43 radar, which is used for close-in, low-level, air search. The tacan antenna is at the top of the mast.



Note that the platforms and walkways on which the radar antennas and other equipment are mounted are lightweight metal grating rather than being solid. This helps keep down topside weight.



The AN/SPS-49 radar is used for long range air search. It is mounted aft on the superstructure.



Below the SPS-49 radar antenna are two dish antennas mounted one above the other. They are for the AN/SPN-42 radar which is associated with the automatic carrier landing system. The smaller light colored dish antenna to the right of the lower SPN-42 antenna is the AS/SPN-44 that measures the airspeed of incoming aircraft that are making their approach to land.



More details of the radars on the mast and aft end of the superstructure are illustrated here.



These two photographs provide front and rear views of the elevation dome for the AN/SPN-41 automatic landing control radar. It is mounted on its own pedestal on the aft starboard side of the flight deck. The azimuth dome is mounted on the fantail and illustrated on page 21.

ENTERPRISE COLOR GALLERY



Taken on August 2, 1962, this photograph shows early colors used on ENTERPRISE. Noteworthy is the fact that the billboard radar panels around the superstructure and the beehive ECM housing are a much lighter gray than the rest of the superstructure or the hull of the ship. The flight deck number was solid at this time. Also note that the landing area is a darker gray than the rest of the flight deck. The carrier USS FORRESTAL is moored next to ENTERPRISE at the pier. The carriers were being readied for Operation Rip Tide 3 when this photograph was taken. (USS ENTERPRISE)



Flight deck colors are shown in this photograph taken on August 31, 1971, in the Gulf of Tonkin off Vietnam. Two F-4J Phantoms from VF-143 can be seen with their hooks down returning from a CAP mission. Note the Sidewinder missiles on their inboard wing pylons. The flight deck number has been both solid and an outline at various times during the carrier's operational life. Note that the elevators have solid yellow lines just inside their edges, and that the entire flight deck is one shade of dark gray. (USS ENTERPRISE)



Anchored off Hobart, Tasmania, Australia, ENTERPRISE is shown here as she appeared in November 1976. By this time the lighter gray radar panels and beehive housing had long since been painted the same shade of gray as the rest of the ship's vertical surfaces. Flight deck markings at this time were similar to those seen in the photograph immediately above. (USS ENTERPRISE)



On the twenty-fifth anniversary of Operation Sea Orbit, ENTERPRISE joins with the nuclear powered cruisers ARKANSAS, CGN-45, (top) and TRUXTUN, CGN-35, to commemorate the event. Einstein's famous equation is spelled out on her flight deck by the crew, just as it was during Operation Sea Orbit. But this time a small **25** is below it to denote the twenty-fifth anniversary of the event.
(USS ENTERPRISE)



Starboard side details and colors are shown here. Note that the **65** on the starboard side has been moved to the upper portion of the superstructure from its original position on the lower portion. **BIG E** is lettered on the aft facing of the superstructure, with the **E** being the huge predominant letter.

(PH2 Ranney, USS ENTERPRISE)

Present flight deck colors are seen here. The flight deck number is obscured by aircraft, but is a white outline. Note the weathering of the landing lines, especially where the aircraft touch down on the deck. These lines are repainted on a regular basis, however. Also note that all horizontal surfaces are a darker gray than the vertical surfaces. This is most noticeable on the superstructure.

(USS ENTERPRISE)





The photographs on this page show ENTERPRISE as she appeared just prior to her 1990-1993 yard period. In this view, note that the **65** on the port side of the superstructure is located on the upper portion of the superstructure, rather than on the lower portion as it had been prior to the 1979-1982 yard period. The flight deck markings appear very worn at this time. (USS ENTERPRISE)



This is the starboard side. Noteworthy is the fact that the radars and masts on the superstructure are the same gray as the vertical surfaces of the ship. They are not black as they are on fossil-fueled ships. Also common to nuclear powered aircraft carriers is the fact that the lower portion of the superstructure is gray rather than black as on conventional carriers. (USS ENTERPRISE)



Taken in July 1990 by the author, this photograph shows the flight deck markings very well. Although flight operations had taken place the previous day, lasting until almost 0200, the landing lines appear fresh, because they had just been repainted the morning this photograph was taken.



This stern view was obviously taken the same day as the top photograph, and shows much more weathered landing lines. This is probably as weathered as the ship ever gets before repainting is accomplished.

(USS ENTERPRISE)

AIR OPERATIONS



An F-14 Tomcat gets the signal to launch from cat one. The two crewmen in green shirts sitting behind the catapult officer control the amount of steam pressure to each catapult. The one to the left controls cat one, and the one to the right controls cat two. However, the catapults are actually fired from a position in the catwalks seen in the background under the nose of the aircraft. The white vehicle to the right is a fire fighting truck, and the yellow one behind it is a huffer that supplies starting air for the jet engines. It can also be used to move aircraft around the flight deck and hangar deck. (PHAN Garza, USS ENTERPRISE)

During carrier qualifications, launch and recovery operations occur simultaneously on an almost continuous basis. Here an F/A-18 Hornet has just been freed of the arresting cable after being brought to a stop, while a second Hornet is about to depart on cat two. Note that the outer section of the JBD behind cat two is not raised so as to permit recovery operations to continue. If it were raised, it would extend past the foul line and cause a foul deck, thus preventing recoveries. An E-2C Hawkeye is ready to go on cat one.



In spite of what the press might want the public to believe, serious accidents are relatively uncommon on aircraft carriers. However, ENTERPRISE did experience a serious fire and explosions on January 14, 1969, while operating off Hawaii. The remains of a KA-3 Skywarrior, an F-4 Phantom, and several A-7 Corsairs can be seen on the burned aft portion of the flight deck. Green fire fighting fluid can be visible in a number of places. Holes in the flight deck and number four elevator can also be seen. Nine bombs detonated on the flight deck during the fire. (U.S. Navy)

Taken the instant the catapult was fired, this photo shows an E-2C as it begins its run down cat one. In two seconds it will be airborne and on its way.



Aircraft from six different squadrons of CVW-11 are shown here flying over ENTERPRISE. From top to bottom are an S-3A Viking from VS-21, an A-6E TRAM Intruder from VA-95, an F-14A Tomcat from VF-213, an A-7E Corsair II from VA-22, a second A-7E from VA-94, and a Tomcat from VF-114.

(USS ENTERPRISE)



Often aircraft taxi on the deck under their own power. Here an S-3A Viking moves forward out of its spot on the aft flight deck toward the waist catapults for launching. Pilots usually keep the wings folded on their aircraft until they reach the area just behind the JBD or until they are actually positioned on the catapult. (Rogers)



At other times, aircraft are moved about the deck with the help of some of the "yellow gear." Note the crewmen positioned around this KA-6D as it is about to be respo-
ted. (Rogers)

An F/A-18 Hornet floats just above the arresting cables with its hook down as the pilot aims for the number three cable. LSOs watch from their platform to evaluate and score the pilot's landing. This landing was made more interesting by the fact that it was made on a rain-soaked deck and in drizzling rain.



The wheels of another Hornet smoke as they hit a dryer deck and the tail hook engages the number two cable.
(USS ENTERPRISE)



The wheels and tail hook of this Tomcat are only inches above the flight deck as the pilot prepares to give full throttle in case of a bolter. In the background, a second F-14 is being spotted on the number four elevator after making a successful recovery.

DETAILS IN COLOR



Painted above the opening for the number three elevator are these markings that serve as reminders of the carrier's operations in the Straits of Hormuz during 1988.



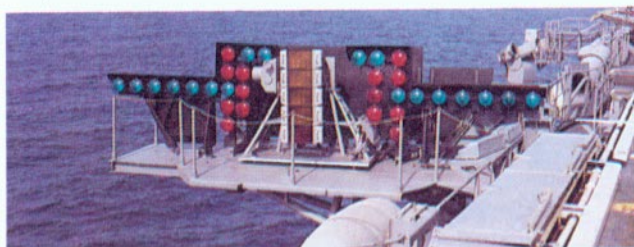
Several types of "yellow gear" can always be found on the flight deck. This is called a deuce, and it supplies electrical power to aircraft.



This is a twin-agent fire fighting unit which can be used to fight both electrical and fuel-fed fires. It can also be used as a tractor to tow aircraft as indicated by the tow bar resting on top of it.



One of the ship's launches is shown being positioned on its cradle in this view. Note the **ENT** painted on the bow. This is probably the captain's launch, and it is usually kept aft on the hangar deck when it is not in use.



These two views provide a good look at the fresnel lens on which the pilot lines up his approach. Note that the inside of the shield forward of the lens itself is painted flat black to increase contrast.



SUPERSTRUCTURE COLORS



Colors and markings on the superstructure are illustrated in the photographs on this page. At left is a view of the entire front facing of the superstructure. The **USS ENTERPRISE** and **CVN-65** are flat white. On the lower section of the island are black panels located on the forward and port sides. Yellow letters on the front panel read **BEWARE OF JET BLAST PROPS AND ROTORS**. Yellow boatswain's wings and crossed anchors are below the black panel. At right is a rear view of the superstructure. **BIG E** is lettered on the upper aft facing, and is not only the ship's nickname, but it also indicates that the ship received the battle efficiency E award.



The close-up at left better illustrates the markings on the lower forward face of the superstructure. At right is another close-up that reveals the details of the brass plaque above the watertight door seen in the photo at left. It is the ship's seal, and note that it still carries ENTERPRISE's original designation, CVAN-65.



At left is an overall view of the starboard side of the superstructure. At right is a close-up of the markings. Note the ship's ribbons painted on the auxiliary conning station. Ship "kill" markings are painted on a flat facing above the **65**, and indicate the Iranian frigates and gunboats attacked by CVW-11 aircraft in 1988. Other awards are signified by the letters above the **65**. The rectangular devices inside the **65** are lights that illuminate the ship's number at night.

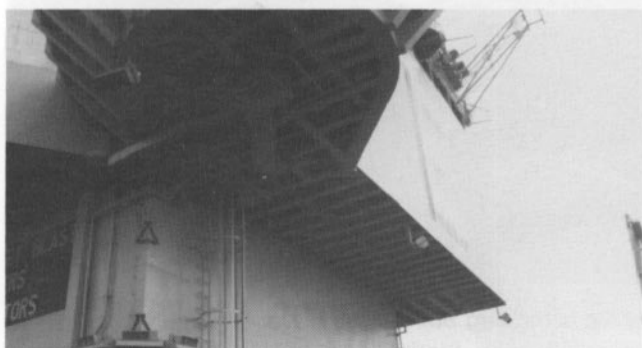
SUPERSTRUCTURE DETAILS



Another overall view of the superstructure is shown here. The smaller lower section leaves more flight deck area for parking aircraft, and usually there are aircraft parked quite close to the superstructure. This photograph was taken at a relatively rare time when few aircraft were near the island.



Moving further aft, the unique island on ENTERPRISE is shown again from the port side aft.



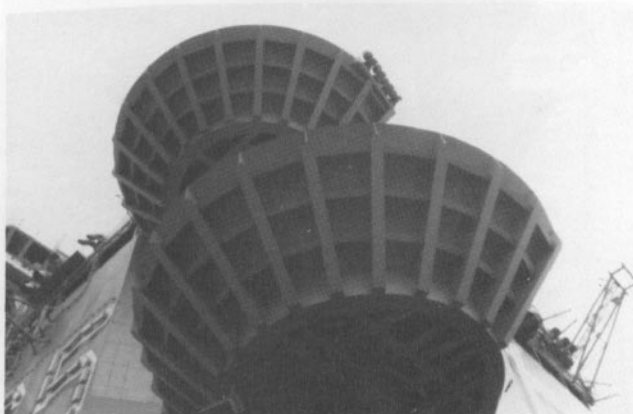
This detailed photograph shows the supporting members of the aft upper portion of the superstructure.



This port side view reveals more details of the superstructure. The large dishes on the aft corner support guidance radars for the port Sea Sparrow launcher.



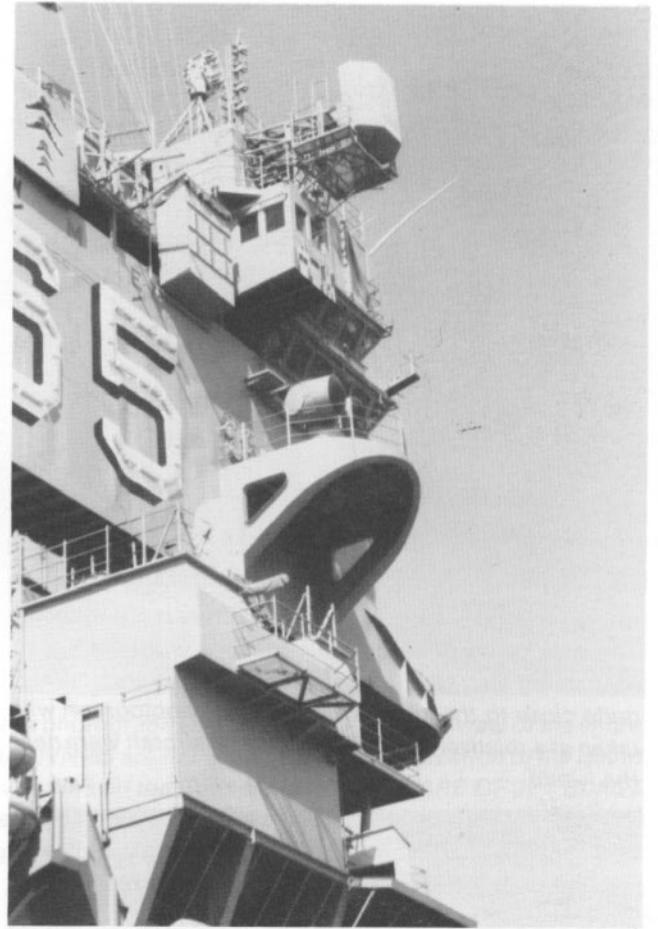
This close-up shows the **BIG E** marking on the aft upper portion of the superstructure to good effect. Modelers should note that only the **E** is shadowed.



The mounts for the two guidance radars for the port Sea Sparrow launcher can be seen here from below. These were added during the 1979-1982 refit. At the same time, the radars for the starboard launcher were added to the forward starboard corner of the island.



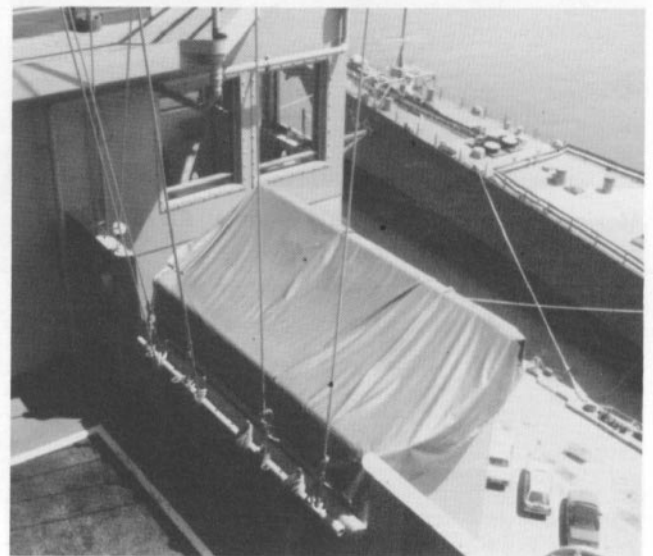
The two mounts for the guidance radars for the starboard Sea Sparrow launcher can be seen in this view of the front starboard corner of the superstructure. The whip antennas projecting forward from above the navigation bridge on this corner are 4-12 MHz fiberglass whip antennas.



The auxiliary conning station is just above the radar location on the starboard side, and above it is one of the SLQ-17 electronic warfare antennas. A flag box can be seen just aft of the auxiliary conn, and can be seen in more detail in the photograph below. A portion of the starboard Phalanx mount can also be seen in this view.



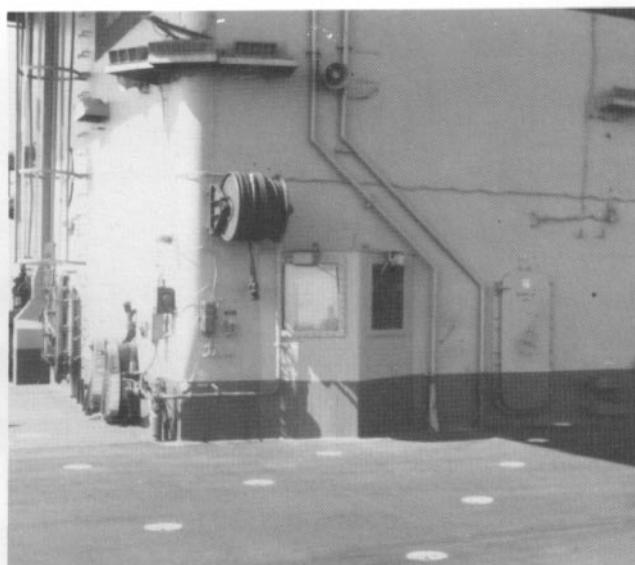
This is the forward end of the upper portion of the superstructure on the port side. From top to bottom are pri-fly, the navigation bridge, the flag bridge, and an enclosed mount for a television camera that records air operations on the flight deck.



This is the flag box on the starboard side just aft of the auxiliary conn. Signal flags are stored in the box, and are hoisted on the ropes seen in the foreground. The box is usually kept covered as seen here when it is not in use.



Details of the port and aft sides of the lower portion of the superstructure are shown in this view. Note the black sign with yellow letters on the port side. Also note how the dark gray color of the flight deck extends up the vertical facings of the superstructures about two feet.



The small angular protrusion with the two windows that extends from the port side of the superstructure is the flight deck control office.



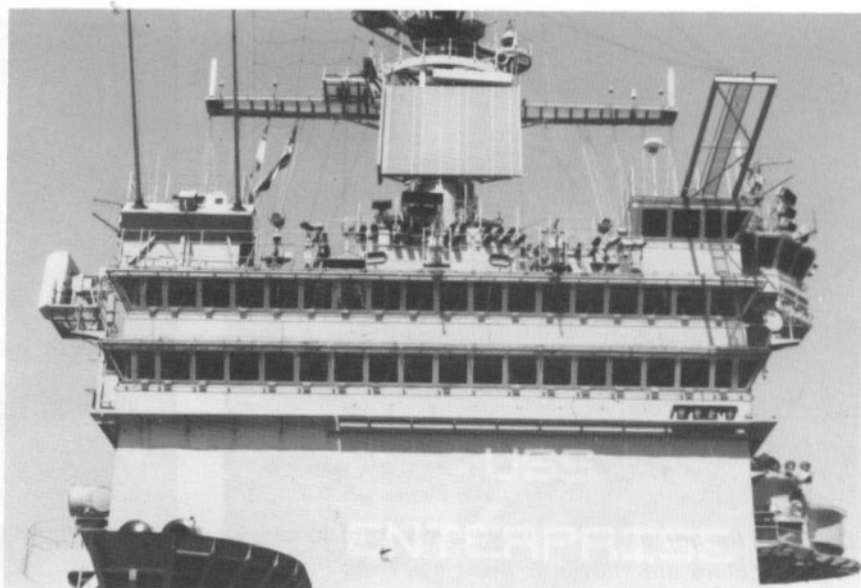
Inside the flight deck control office is a table with an outline of the flight deck painted on it. Scale silhouettes of aircraft are positioned on the outline just as the real aircraft are positioned on the actual flight deck. Movement and spotting of aircraft is controlled from this location. Below the flight deck portion of the table is a second level with a similar scale outline of the hangar deck. Aircraft silhouettes can also be positioned on that level to reflect aircraft positions on the hangar deck.

Also in the flight deck control office is a panel with all of the squadrons currently operating aboard the ship indicated by their respective insignia and designations. The modex, or nose number, of each aircraft within the squadrons is painted on the clear plastic panel. A crewman stands behind the board with a grease pencil and writes backward to record the status of each aircraft in the air wing.

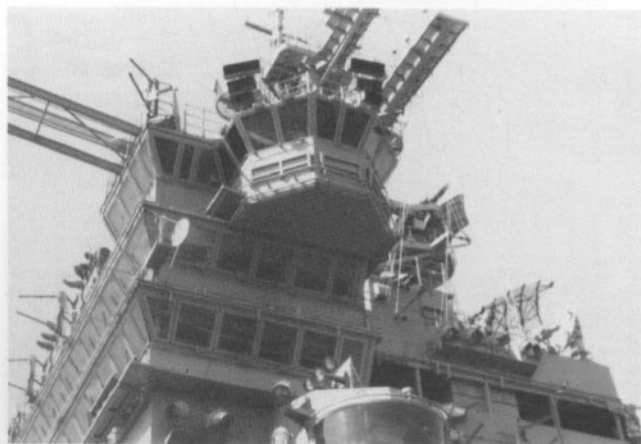


BRIDGES & PRI-FLY

There are two large bridges on ENTERPRISE, one above the other. The lower bridge is the flag bridge for an admiral and his staff who would be using ENTERPRISE as a flagship. The upper bridge is the navigation bridge.



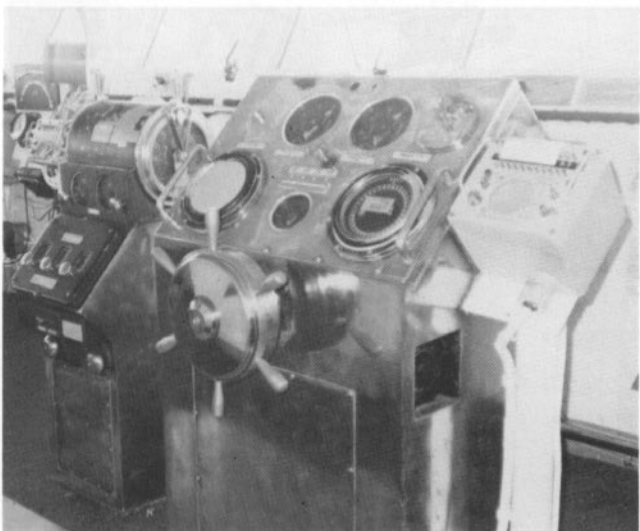
The auxiliary conning station is aft of the navigation bridge on the starboard side. It is used when berthing the ship, and provides a good view of the pier. Carriers are almost always berthed with their starboard side to the pier.



On the port side above the two bridges is pri-fly, which is often called "primary." It is the control tower for the ship, and controls aircraft in the pattern as well as the flight deck operations. The air boss and mini boss are located here as are supporting crewmembers. A good portion of pri-fly protrudes well out over the flight deck to provide a good view of the activities below. In the photo at left, the forward and port sides of pri-fly can be seen, and at right is a view of the aft side.



Details of the interior of the navigation bridge are shown in these two photographs. The view at left looks from starboard to port, and the captain's chair can be seen in the background. At right is a view that looks from port to starboard. The crewman sitting in the chair in the distance is standing watch while the ship is in port. In the foreground are the engine order telegraph and ship's wheel.



Details of the engine order telegraph and ship's wheel are illustrated here. Both are covered in polished brass.



This is the captain's chair which is located at the port corner of the bridge. The immediate area around it is designed to function both as a command station and an administrative office.



These two views were taken inside the flag bridge. It is far more simple than the navigation bridge seen above. Again, the view at left looks from starboard to port, while the one at right looks from port to starboard.

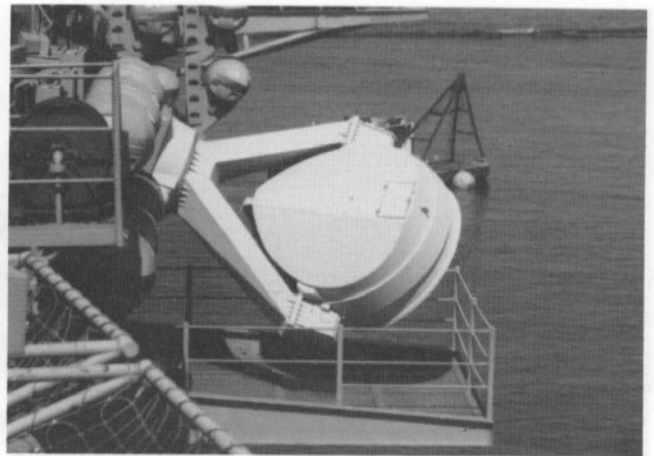
ANTENNAS



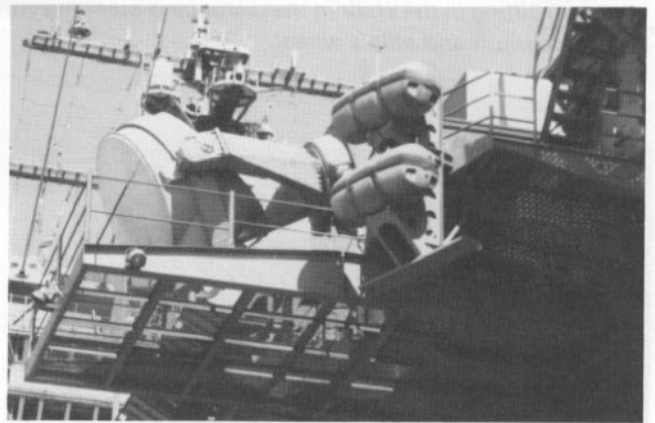
In addition to the primary radar antennas, dozens of other types of antennas are located all around the ship and on the superstructure. Two major types of these antennas are illustrated on this page. In the photograph above is the port side SMQ-10 or "Smack-10" weather satellite tracking antenna. This view was taken from aft of the antenna looking forward along the port side.



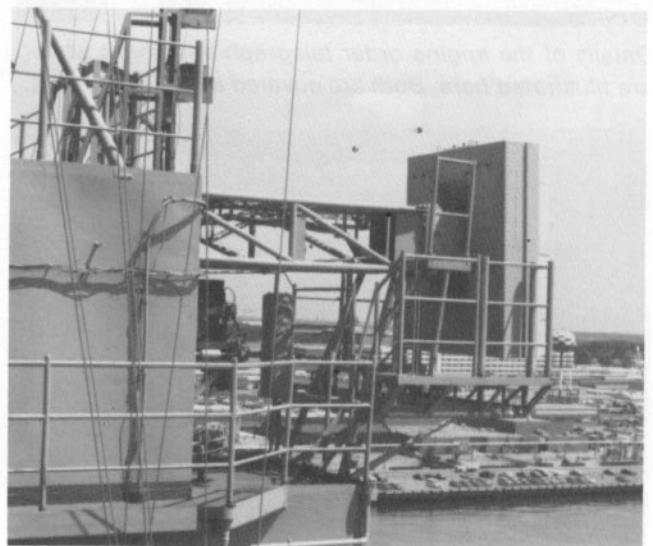
AS-2963/SLQ-17, or "Slick 17" electronic warfare measures support antennas are located on each side of the ship. These antennas intercept and analyze radio and radar signals. They also transmit deceptive radar signals from the carrier. The antenna in the photograph at left is on the port side of the ship just below the flight deck level, and the one at right is on the starboard side of the superstructure.



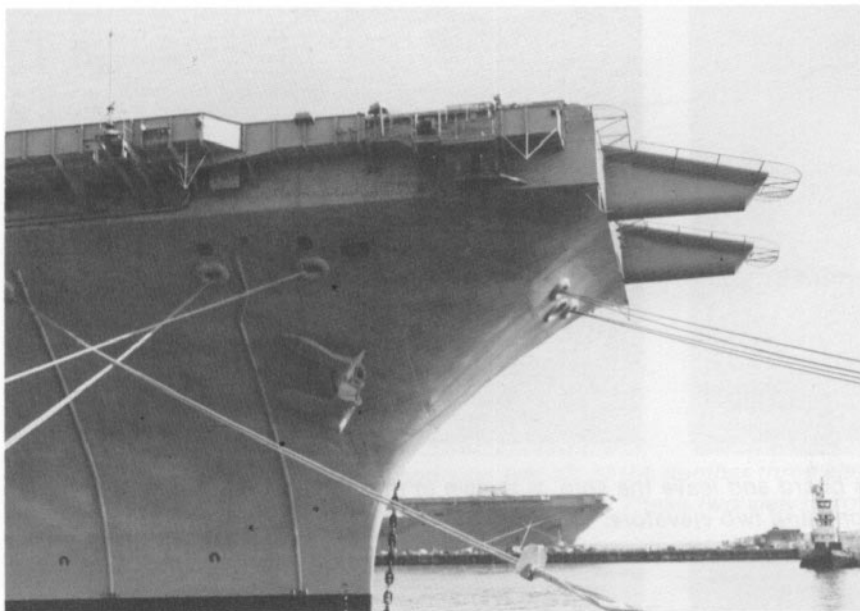
The same antenna shown at right is illustrated again in this photograph. This view was taken from in front of the antenna, and reveals the platform below it in better detail.



A second SMQ-10 weather satellite tracking antenna is located on the starboard side. It is shown here from in front of the antenna and below. Both SMQ-10 antennas are flat white in color.



STARBOARD SIDE DETAILS



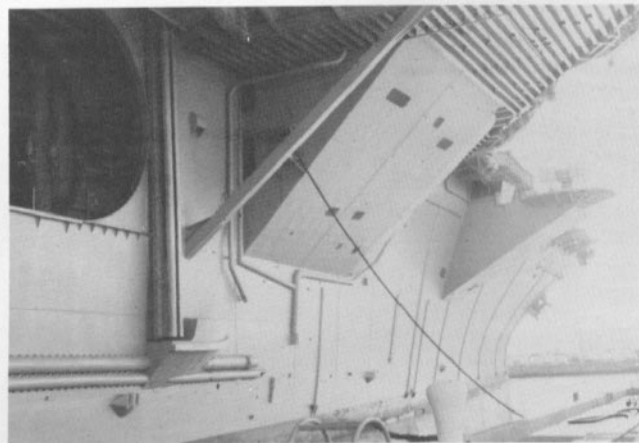
The photographs on this and the following four pages show details of the starboard and port sides of the ship. These photographs reveal many of the ship's features in close-up detail, and are designed to help modelers correct and detail models of ENTERPRISE. The photograph at left shows the starboard bow, and provides details of the catapault overruns and starboard anchor.



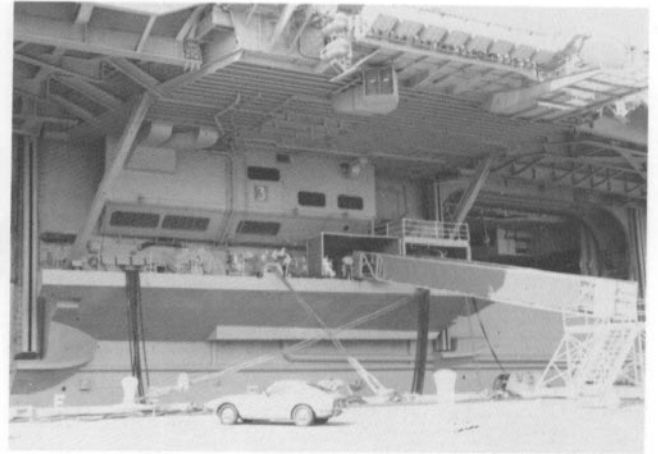
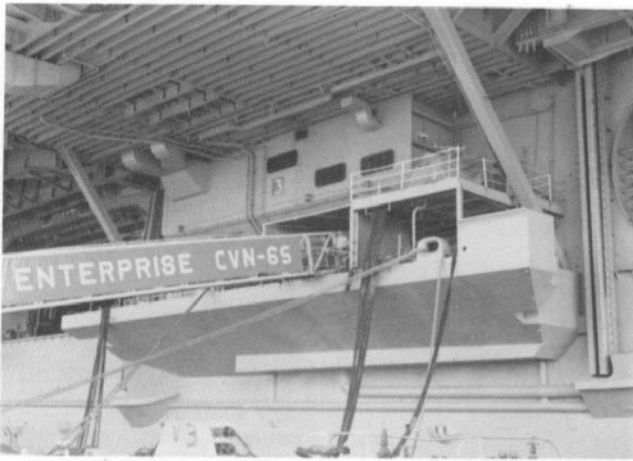
These two views show the sponson for the starboard Sea Sparrow missile launcher from different angles.



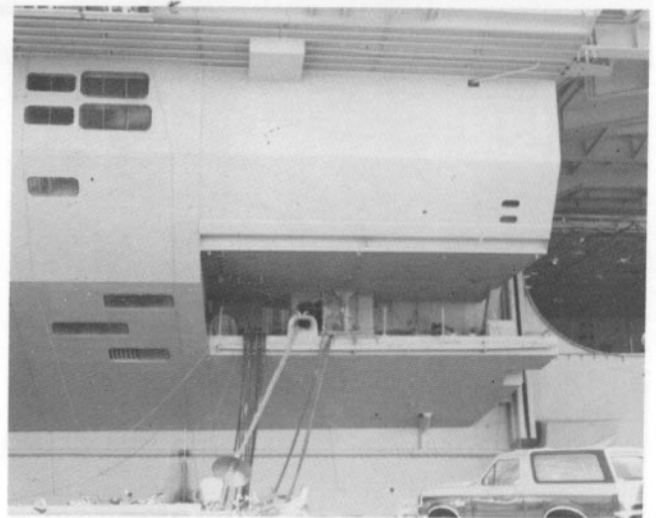
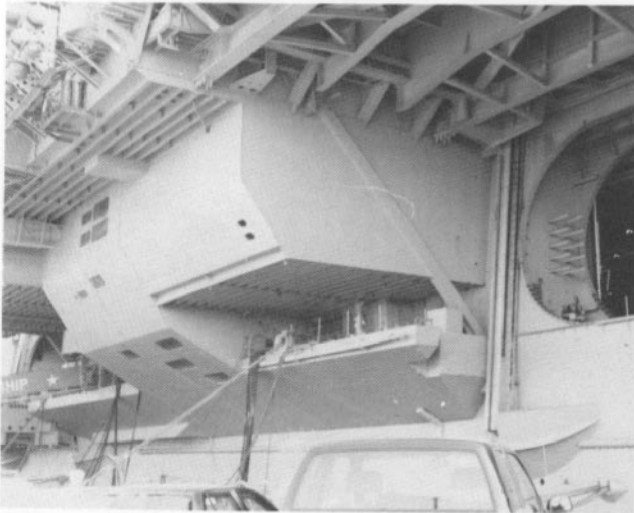
The forward end of the starboard flight deck overhang and its supporting structures can be seen here.



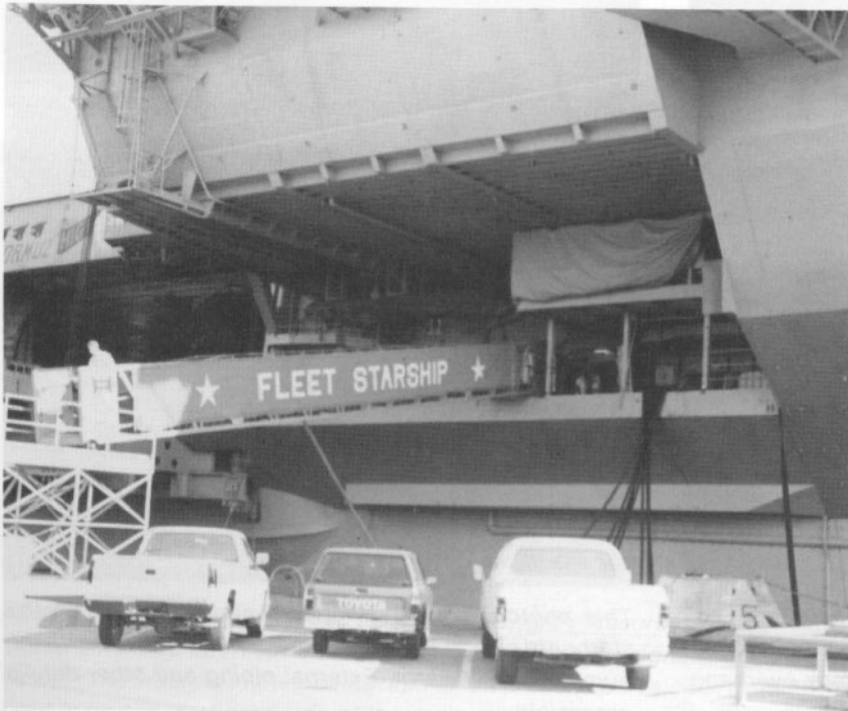
This photograph looks forward along the hull on the starboard side. It was taken from a position even with the number one elevator. External piping and other details are visible.



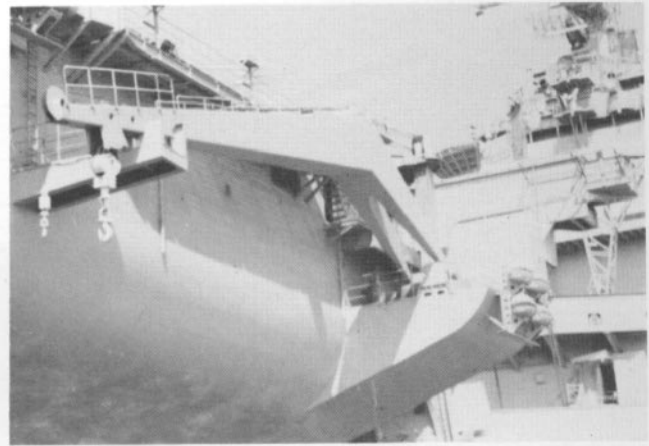
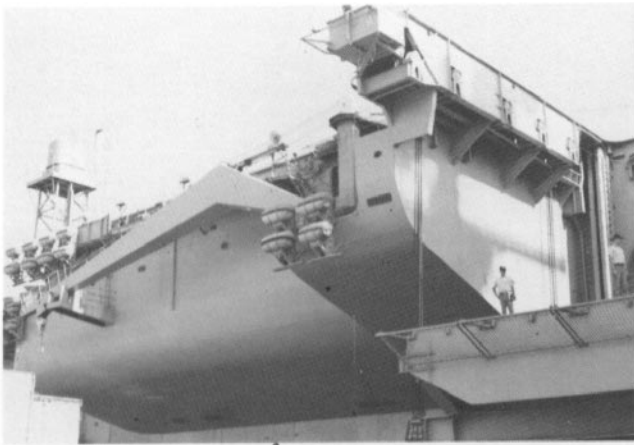
The quarterdeck, where officers and VIPs board and leave the ship, is shown in these two views. It is located at the hangar deck level between the numbers one and two elevators.



The supporting structure beneath the superstructure can be seen here.



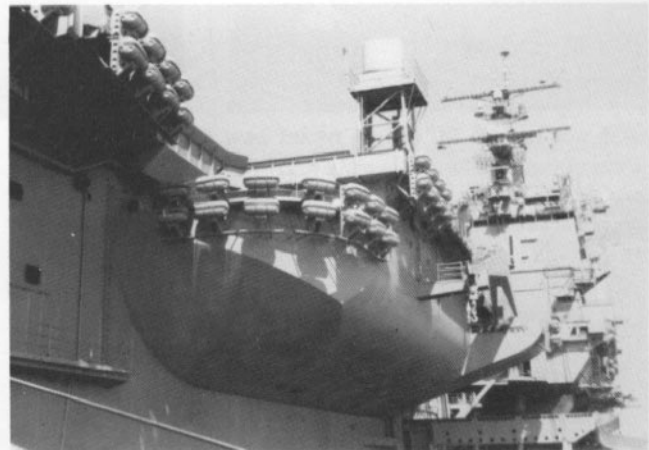
The afterbrow, where enlisted men board and leave the ship, is at the aft end of the structure shown in the two photographs immediately above.



The ship's crane is mounted on a sponson just aft of the number three elevator. It is used for lifting everything from aircraft to food supplies onto and off of the elevator. These two views provide a good look at its details.



When not in use, the crane rests on this small platform. Details of the hooks are also visible in this photograph.



An overall look at the sponson on the starboard quarter is provided here. Note that there is no Mark 29 Sea Sparrow launcher here. Earlier, a Mark 25 launcher had been located in this position. Plans have been included to add a Mark 29 launcher on this sponson during the 1990-1993 refit, but it remains to be seen if it will actually be installed given current budget constraints and defense cutbacks.



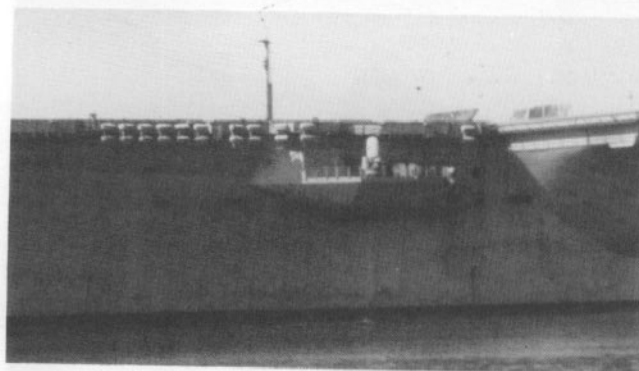
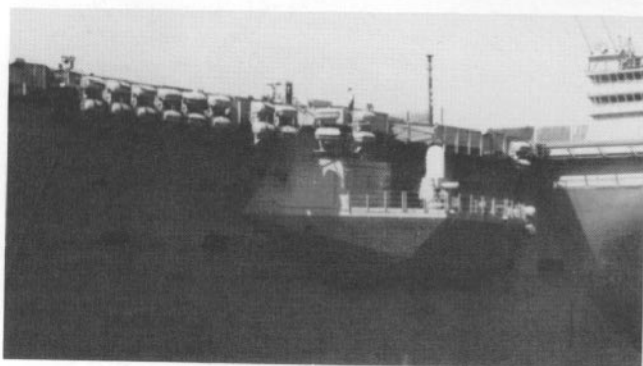
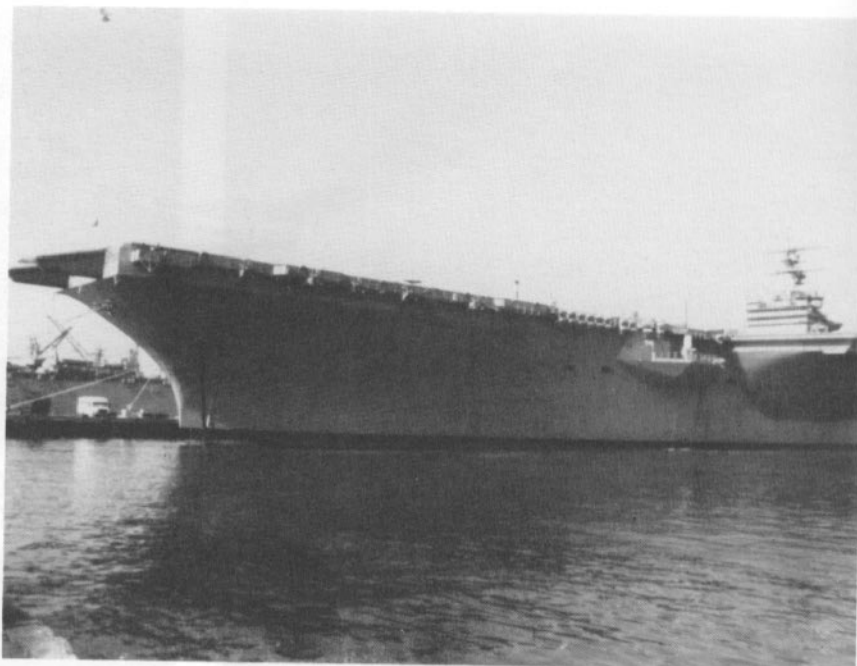
This small platform is located at the extreme aft end on the starboard side of the hull. It is at the hangar deck level.



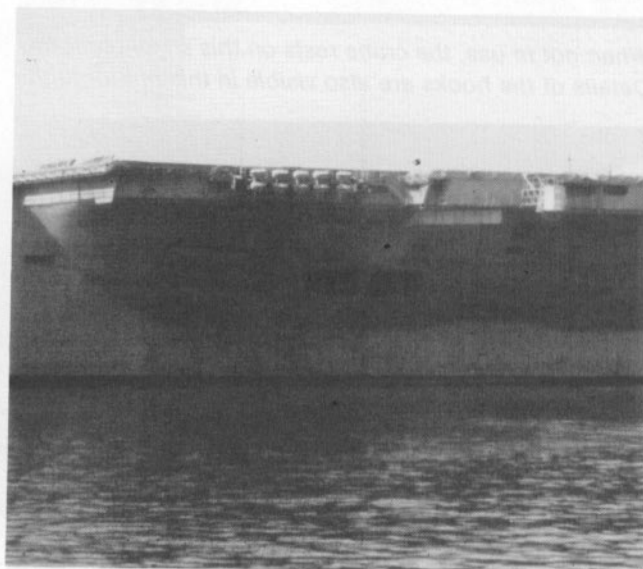
The entire starboard quarter can be seen here, and supporting members for the aft flight deck overhang are visible.

PORT SIDE DETAILS

All of the port bow is shown in this view. The port anchor is lowered, and the black anchor chain is visible.



The shape and details of the sponson that supports the port Phalanx system can be seen in these photographs that were taken from two different angles.



The supporting structure for the flight deck overhang is quite massive as is evidenced in the photo at left. Note how its forward end is rounded to reduce drag from waves in high seas. Two small openings can be seen at the hangar deck level just aft of this curved area in the photograph at right. The location of the SLQ-17 electronic warfare measures support antenna on this side can also be identified in the left photo.



Amidships on the port side is a boat deck which is cut into the supporting structure for the overhang. Just forward of this boat deck, and up at the catwalk level, is the port weather satellite tracking antenna, and the location for the fresnel lens can be seen directly above the forward end of the boat deck.

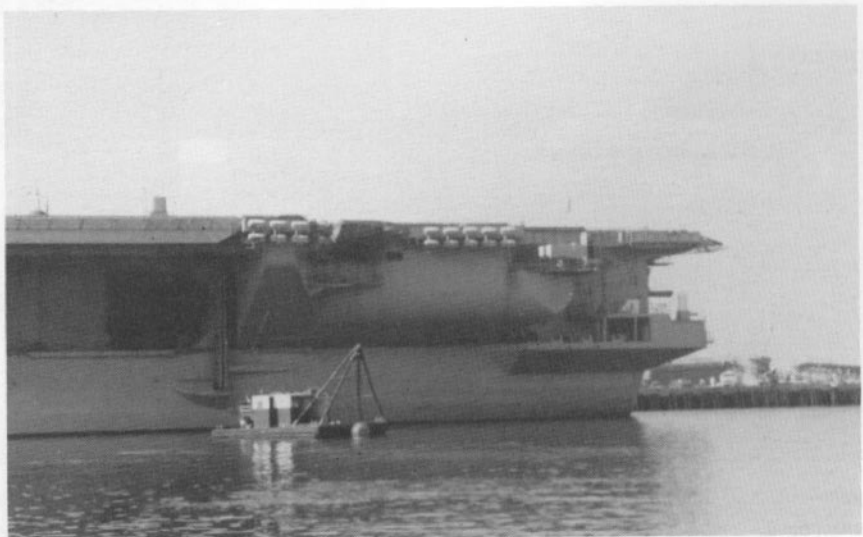


This photograph was taken at the aft end of the boat deck, and looks forward. It shows the whaleboat in position on its davits.

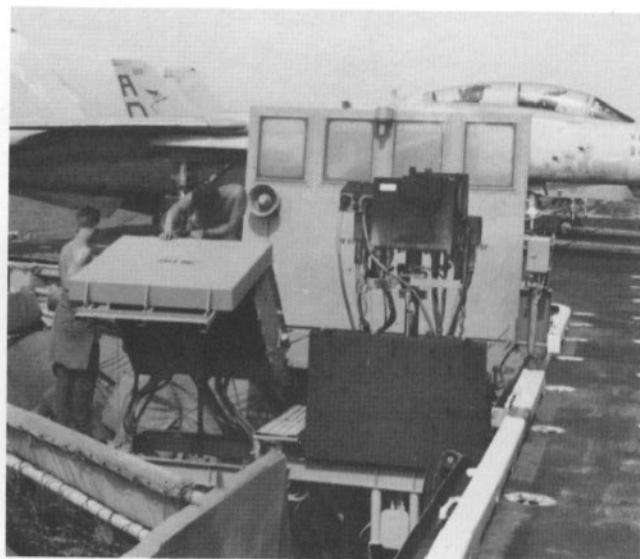


Just aft of the boat deck, the supporting structure continues back to a platform that is just forward of the number four elevator. Two additional small cutouts can be seen at the hangar deck level. The number four elevator is at the right side of this photograph.

Details of the port quarter are provided here. The port Sea Sparrow launcher can be seen at the aft end of the sponson, and the netting around the LSO platform is near the forward end of the sponson at the flight deck level. The small platform at the extreme aft end of the quarter at the hangar deck level has been extended to support the Phalanx mount. This platform then continues on around the corner of the ship and on to the fantail. This Phalanx mount has good fields of fire to port and aft of the ship.

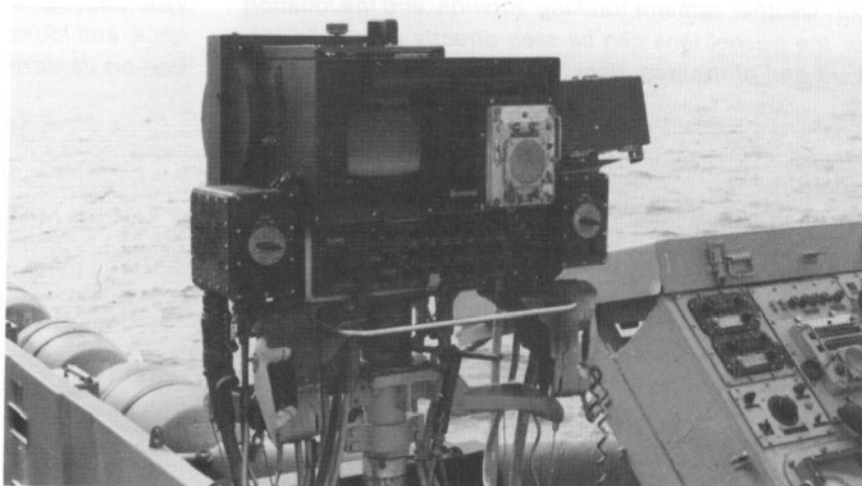


LSO PLATFORM



The LSO (landing signal officer) platform is located just aft of the number four elevator. In the photograph at left, crewmen are opening the console and preparing to raise the HUD (head-up display) during checks between flight operations. At right, the HUD is in the raised position.

Details of the HUD can be seen in this view.



When not in use, the entire LSO platform, to include the WOD (wind over the deck), shield can be folded down and stowed as shown in these two photographs that were taken while the carrier was in port.

HANGAR DECK

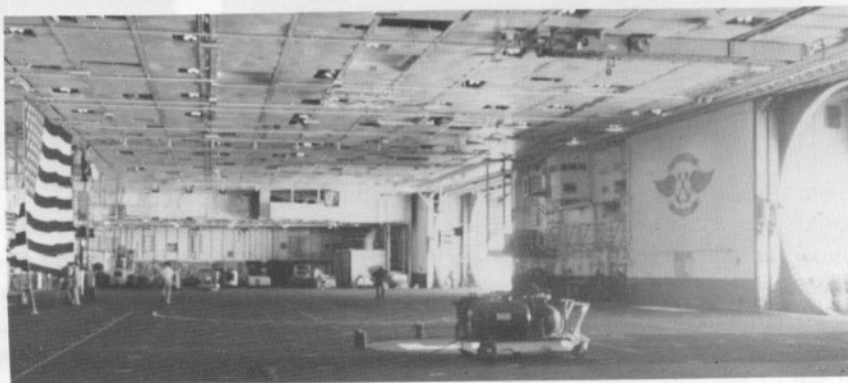


The hangar deck is divided into two bays by large fireproof and blastproof doors. It is 732 feet long and 96 feet wide, with a height of 25 feet. Taken on September 14, 1964, this photograph shows it crowded with aircraft. A-5 Vigilantes, F-8 Crusaders, A-4 Skyhawks, an A-1 Skyraider, F-4 Phantoms, a C-1 Trader, and an E-1B Tracer are among the aircraft visible in this view. (U.S. Navy)



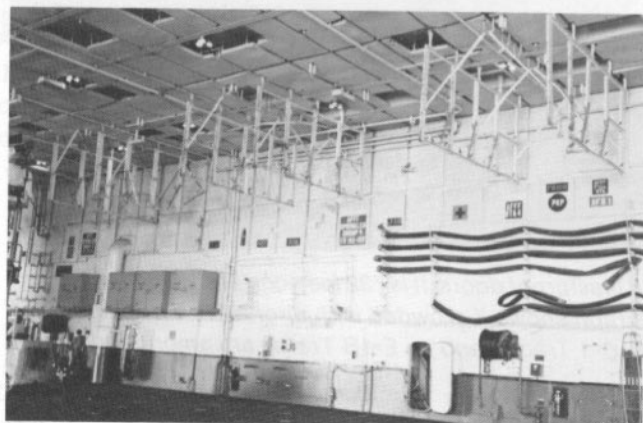
This is the forward end of the hangar deck. It is important to note that the hangar deck only extends a few feet forward of the number one elevator.

This photograph was taken approximately even with the aft end of the number two elevator, and looks forward. The opening for the number one elevator is visible in the background on the right side. The hangar deck has the same non-skid surface as the flight deck, and is the same dark gray color.

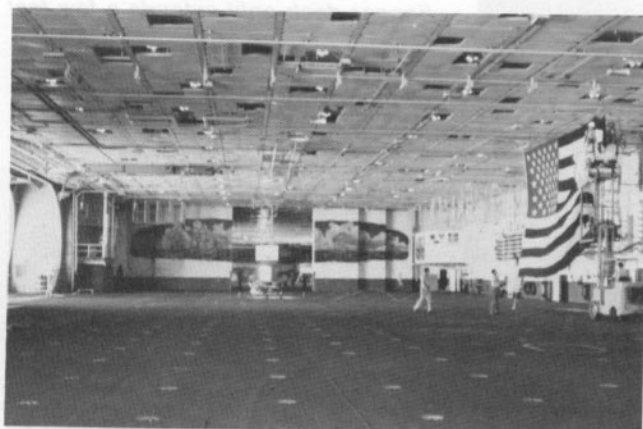




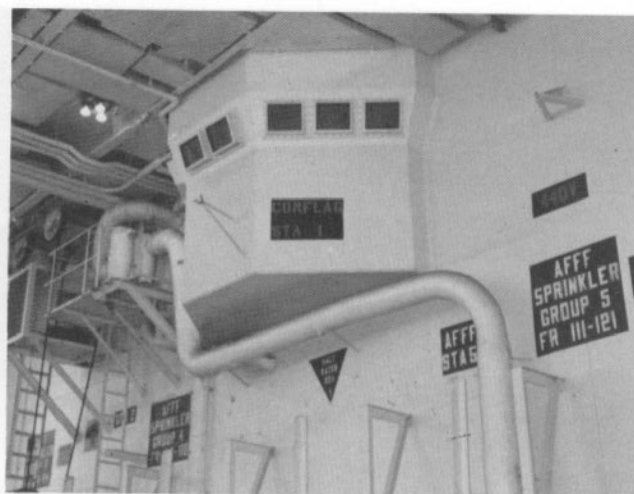
Yellow gear is shown parked here at the forward port corner of the forward hangar bay.



A section of the wall along the port side of the forward bay is visible in this photograph. Reels, hoses and various other equipment are stored along the wall. Modelers should note that the walls and overhead are white, and the bottom three and one-half feet of the wall is painted blue. The overhead racks carry external fuel tanks for aircraft when the air wing is embarked.



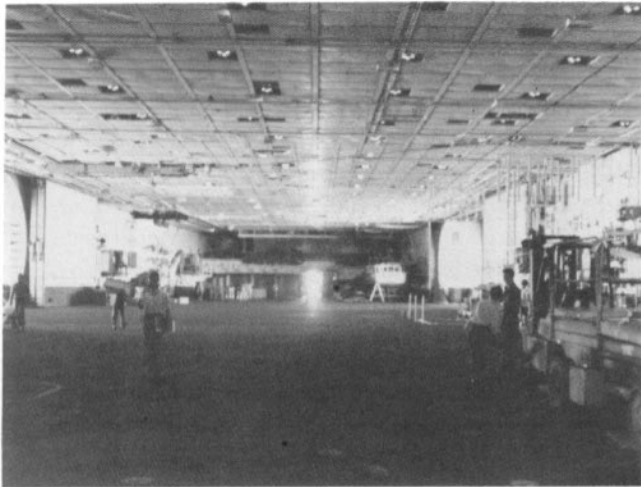
Taken from the forward end of the hangar deck and looking aft, this photograph shows the fire doors that separate the two bays of the hangar deck. They are in a partially closed position. A mural with the first six ships to be named ENTERPRISE is painted on this side of the doors. The opening for the number two elevator is seen at left.



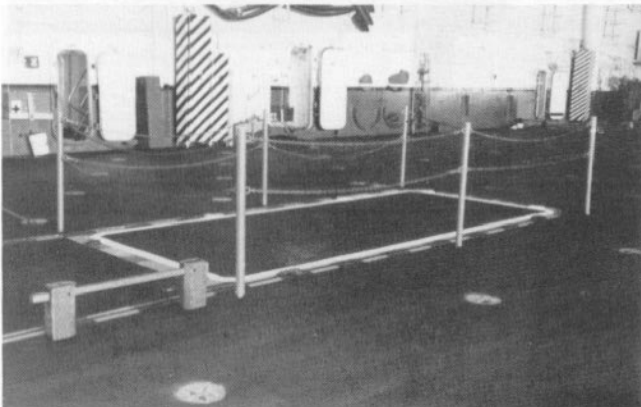
This is a CONFLAG station. Fire-fighting efforts in the forward bay would be directed from here if necessary. The station is located just aft of the opening for the number one elevator.



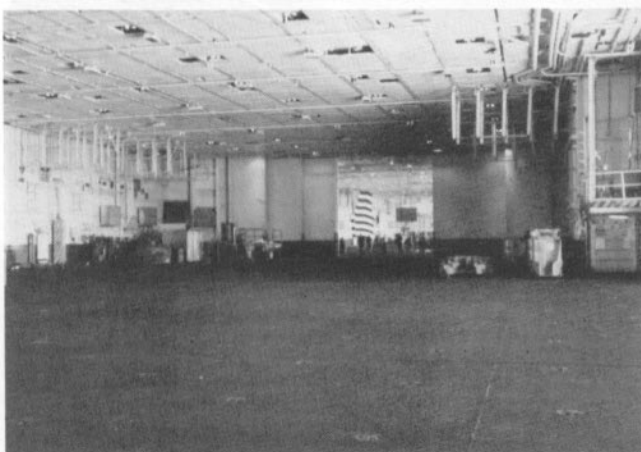
The port side fire doors between the two bays are shown here in the open position. Just forward of them (to the right in the photograph) is a painting of ENTERPRISE number seven, which was the famous carrier of World War II. Close-up photos of this painting, and the mural on the doors shown at left can be found on page 4.



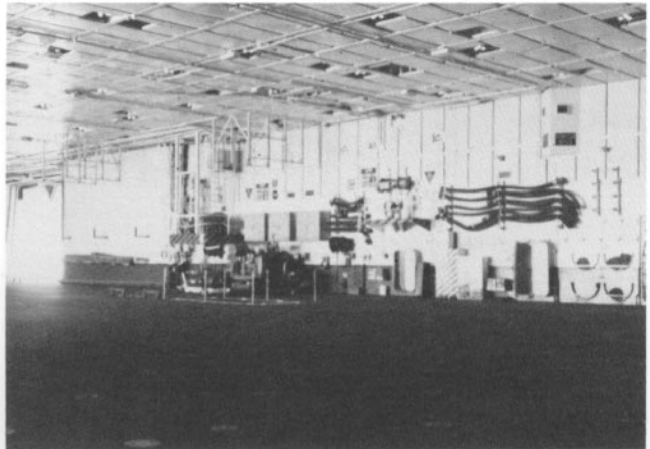
After walking between the fire doors into the aft hangar bay, this is the view a person would have looking back toward the fantail. A part of the opening for the number three elevator can be seen at left.



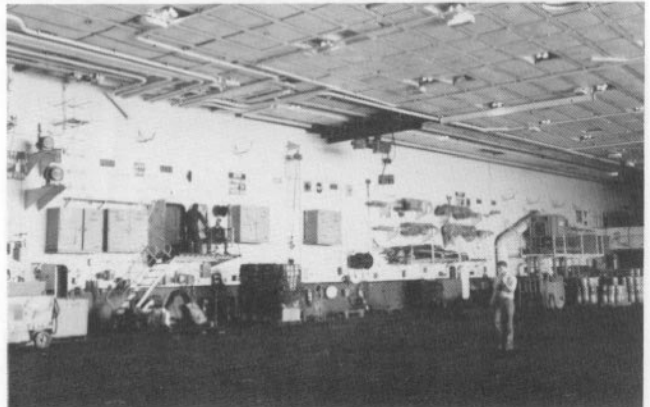
This is the armament or service elevator, which is visible in the top right photograph. The top part is hinged, and it works much like the armament elevators shown in the photographs on page 25.



Taken from a position even with the opening for the number three elevator, and looking forward, this photograph shows the fire doors and forward portion of the aft hangar bay. Overhead racks for external fuel tanks are again visible in this view.



Moving a little further aft and to his left, then looking to the right, the same person would see the wall on the port side of the hangar bay. The opening for the number four elevator can be seen at the extreme left of the photograph.



This is the starboard wall of the aft hangar bay aft of the number three elevator.

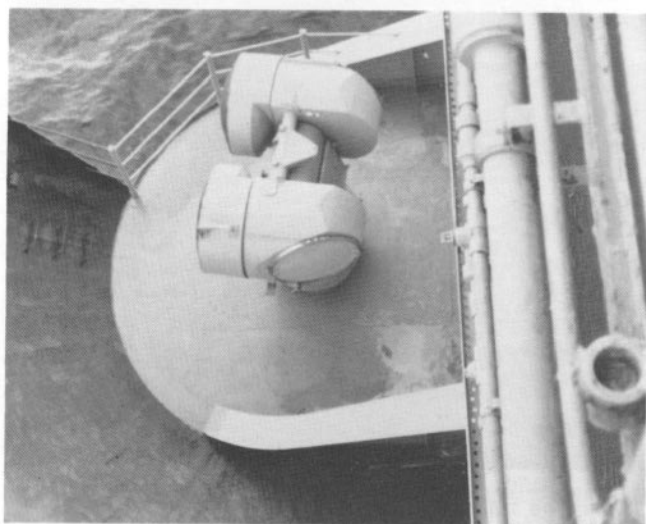


The extreme aft end of the hangar bay is shown here. The open door near the center of the photograph leads to the fantail, and a portion of the captain's launch can be seen at right.

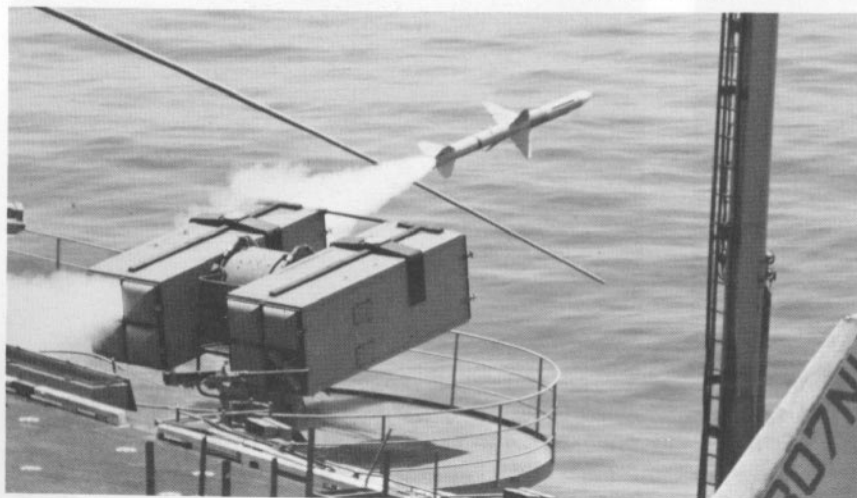
WEAPON SYSTEMS MARK 29 SEA SPARROW MISSILE SYSTEM



Left: When ENTERPRISE was designed, it was intended that she be fitted with two twin Terrier missile launchers on the sponsons located on her quarters. But in an attempt to hold costs down, these launchers and their associated radars were deleted. Therefore, when ENTERPRISE was first commissioned, she had no defensive armament. In 1967, two Mark 25 Sea Sparrow launchers were placed on the sponsons where the Terriers would have been located. These were removed during the 1979-1982 refit. The port launcher was replaced with a Mark 29 Sea Sparrow launcher, but the starboard launcher was not replaced. Instead, that sponson was left vacant except for two RBOC launchers (see page 59). A second Mark 57 launcher was added forward on the starboard bow. To accommodate it, a new sponson had to be added in this location. This photograph provides a view of that sponson and launcher as seen from behind it looking forward.



The Mark 29 system included an improved missile, and required continuous wave guidance radars to direct the missiles. The two radars for the forward launcher can be seen in these photographs. They are located on the forward starboard corner of the upper portion of the superstructure. The photograph at left looks down at the radar on the forward face of the superstructure, and the photograph at right shows both radars. A shield protects the radar on the forward face of the superstructure from jet blast coming from the flight deck, and protects crewmen on the deck from radiation. The inside of this shield is painted black as seen in the photograph at left.



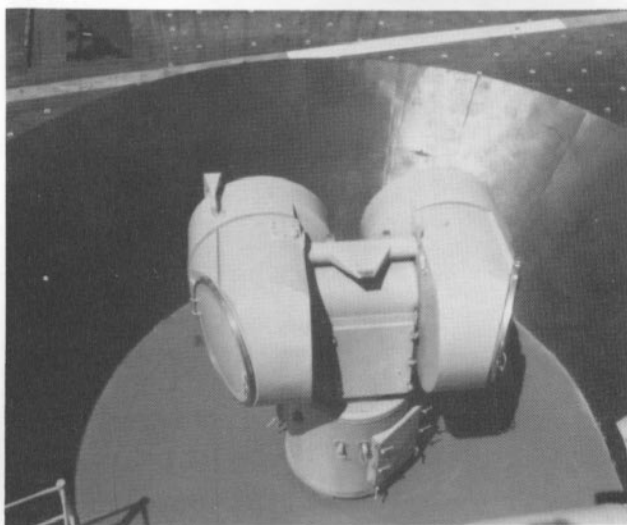
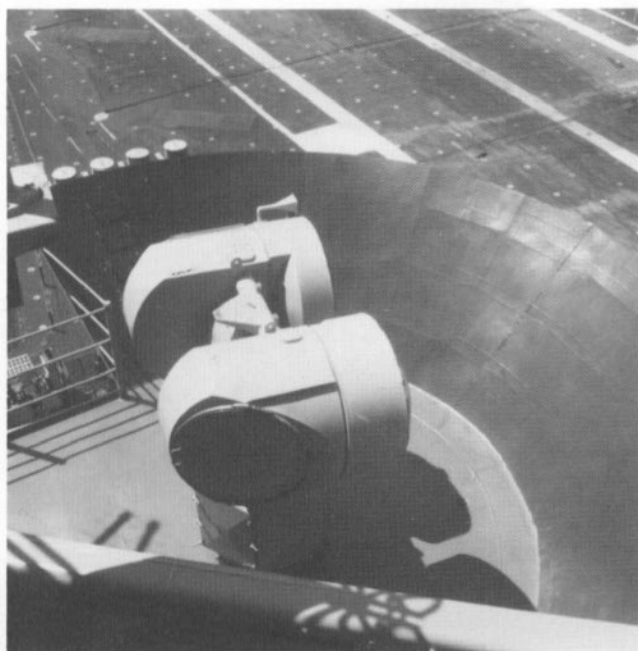
A Sea Sparrow missile is shown being fired from the forward launcher during practice exercises. Note the .50 calibre machine gun mounted near the launcher. These machine guns are used to protect the ship from terrorist attacks.

(PH2 Ranney, USS ENTERPRISE)



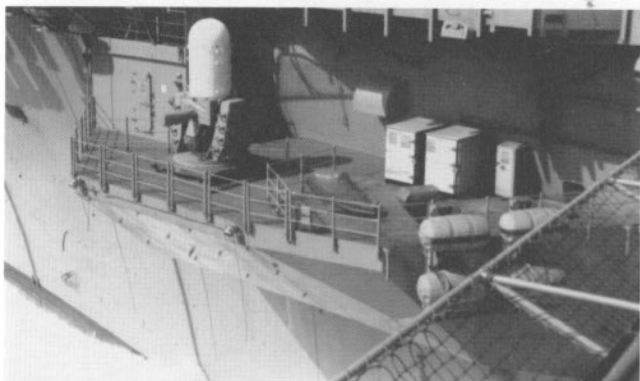
The Mark 29 Sea Sparrow launcher on the port quarter is seen in these two views. The photograph at left was taken from aft of the launcher, and looks forward and down at it. The photo at right looks aft and down at the launcher from a position forward of it on the flight deck. Note that the eight covers at each end of the launcher are white, while the rest of the launcher is gray.

Right: The two guidance radars associated with this launcher are positioned on the aft port corner of the upper section of the superstructure. Both of their positions can be seen in this view, although the radars themselves are difficult to see because of their protective shields.



The upper radar of the two associated with the port launcher is seen from two different angles in these photographs. Again note that the inside portion of the shield is painted black.

MARK 15 PHALANX GUN SYSTEM



The Mark 15 Phalanx close-in weapon system (CIWS) is a 20mm gun system based on the six-barrel Vulcan cannon. Its radar (housed in the white dome) gun, and ammunition drum are all mounted together as a self-contained unit. *ENTERPRISE* has three Phalanx systems. The one in this photograph is mounted on the port bow. The mount and its supporting sponson are visible in this view.



A close-up provides a more detailed look at the Phalanx system itself. The gun barrels are often kept covered when the system is not expected to be used.



A second Phalanx mount is located next to the superstructure on the starboard side.



The starboard mount is shown from above in this view. Note the ring painted on the platform around the mount. It is red, and has the words **DANGER AREA** lettered in white in several places.



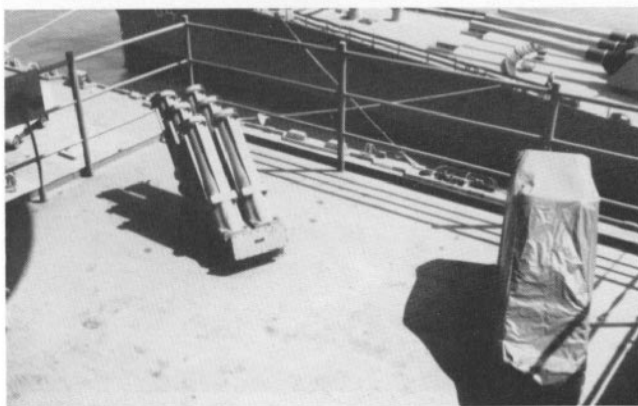
The third Phalanx mount is on the fantail, and is illustrated in these two photographs. All three of the Phalanx systems were added to the ship during its 1979-1982 refit.



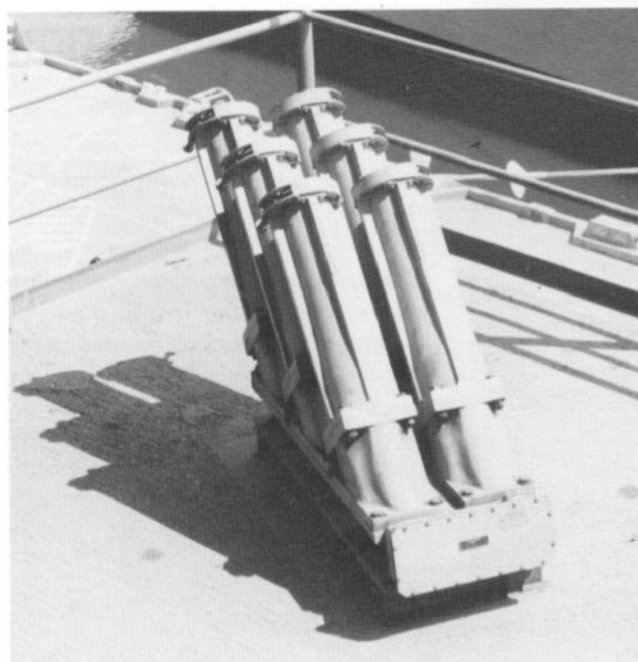
MARK 36 RAPID BLOOM OFFBOARD CHAFF SYSTEM



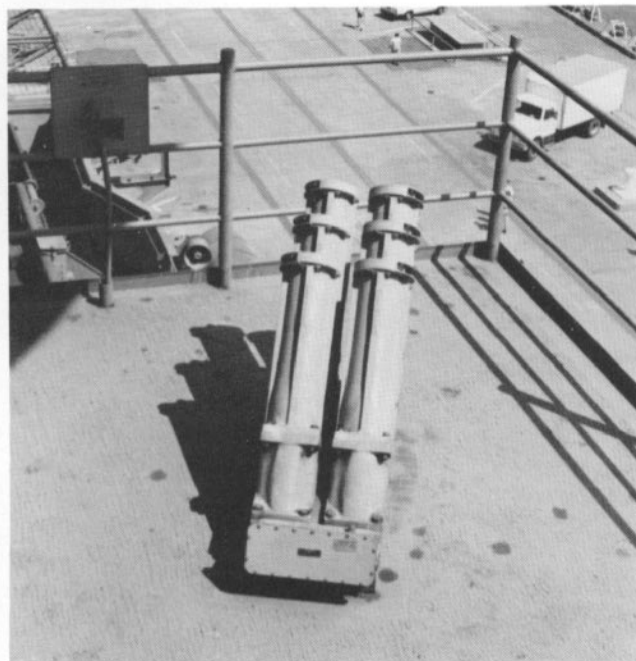
The Mark 36 Rapid Bloom Offboard (RBOC) system consists of launchers with six tubes each. These launchers are placed in pairs at various locations around the ship, and can be fired to shield the ship with a cloud of chaff. The launchers can also fire decoys to confuse infrared guidance systems. Looking again at the forward port Phalanx sponson, two RBOC launchers can be seen aft of the gun system. The launchers are usually kept under a protective cover when not in use.



Other launchers are located on a platform on the starboard side of the superstructure.



Two more RBOC launchers are mounted on the sponson on the port quarter. Plans call for these to be removed during the 1990-1993 refit, and a third Sea Sparrow launcher is to be added in this location. If it is, it will be interesting to see where the associated guidance radars will be positioned.



These two close-up photographs reveal details of an uncovered RBOC launcher.



The marvels of the electronic age can be found throughout the carrier. Here, radar scopes and status boards in Air Operations keep track of the ship's aircraft and any other aircraft operating near the carrier. (USS ENTERPRISE)



RELAXATION

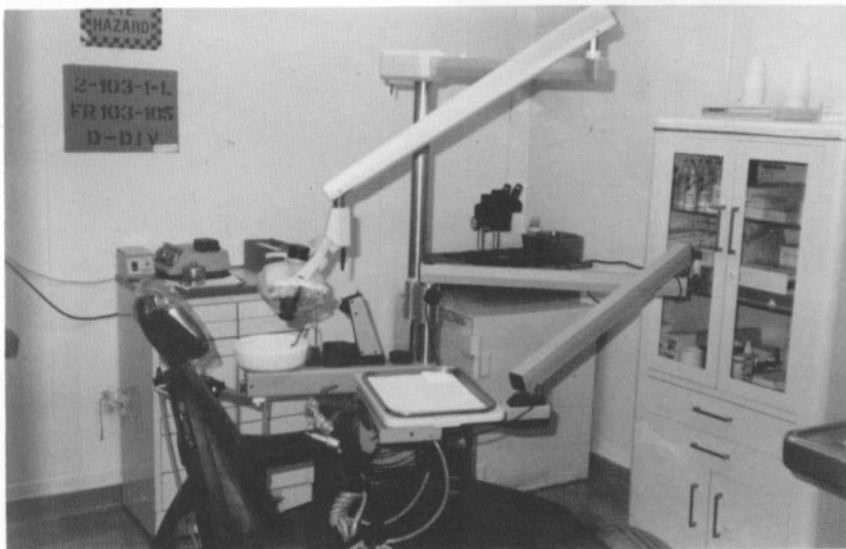
Elsewhere in the ship, a far more relaxed and casual use is made of scopes and electronic devices! Here PHAN Felix Garza spends some of his off-duty time at one of several video games located near the enlisted mess area.

MEDICAL FACILITIES



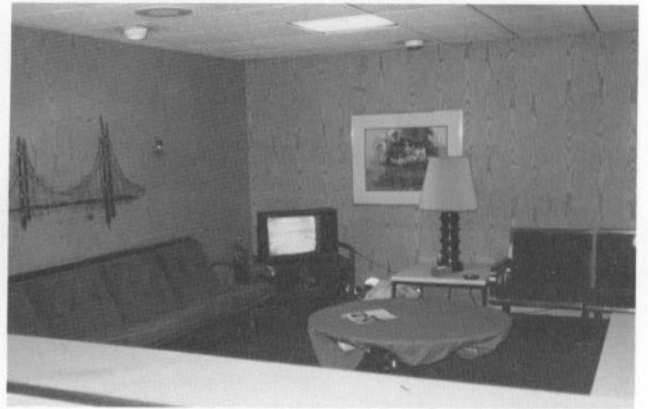
Complete medical facilities are aboard ENTERPRISE for her 5000+ man crew. This photograph looks into a complete operating room which can handle almost any kind of surgery that might be needed by a crewman from ENTERPRISE or one of her smaller escort ships that would not have as extensive medical facilities as the carrier.

Less serious medical cases are routinely handled in sick bay. Here a medical corpsman checks on two patients during sick call.



Dental facilities are also available, and complete dental care is provided to the crew. This is one of several rooms in the dental division.

MESSING FACILITIES



It takes a lot of room, a lot of food, and a lot of work to feed over 5000 men three meals a day. The photograph at left was taken in the admiral's mess on the 03 level, and at right is the lounge area adjoining the admiral's mess.



The officer's mess is on the second deck, and is seen here. The captain and his staff sit at the long table in the background, but the captain also has a more private area where he can take his meals.

Waiters provide service in the officer's mess, but cafeteria style meals are also available. A portion of the service area showing drink machines is visible in this view.





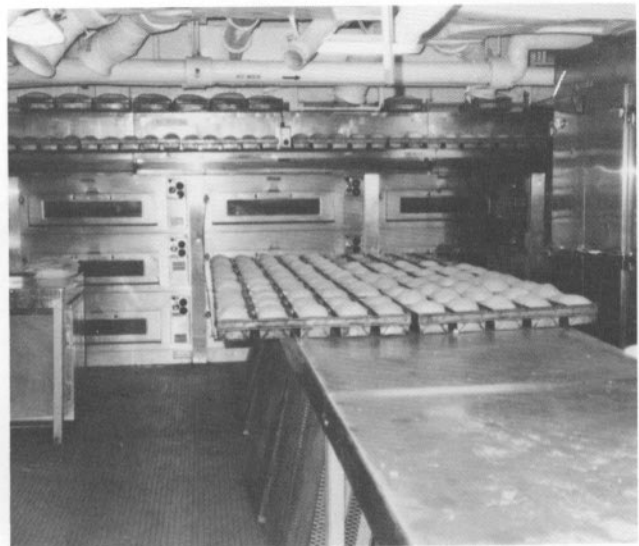
Senior enlisted men eat in the chiefs' mess, which is shown in these two views.



Most of the crew eats in the enlisted mess, which is a cafeteria style arrangement with tables and chairs as seen here. Most of the crewmen seemed to think the food is usually good, and all agreed that there is always plenty to eat.

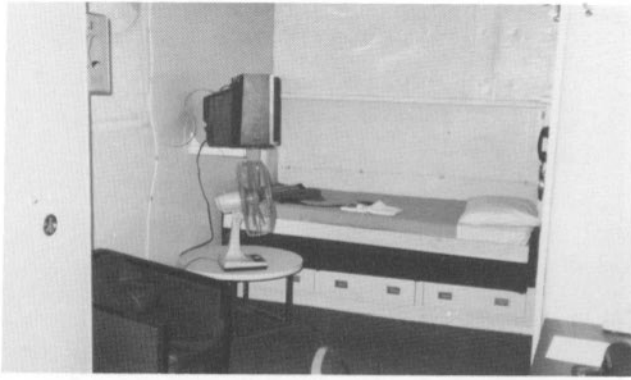


A lounge area, complete with a television and dart board, is also available to the enlisted men. Low-hanging pipes, ducts, and electrical runs seem to be almost everywhere on the ship.

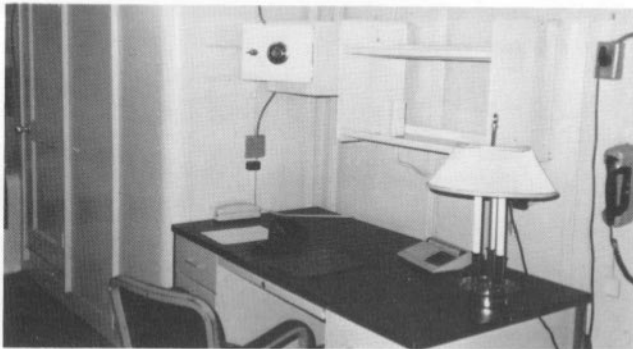


Huge ovens are necessary to cook the food. Here, over one hundred loaves of bread are ready for baking in the ovens that can be seen in the background.

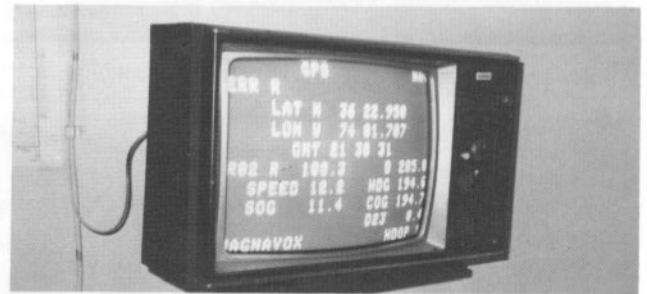
BERTHING FACILITIES



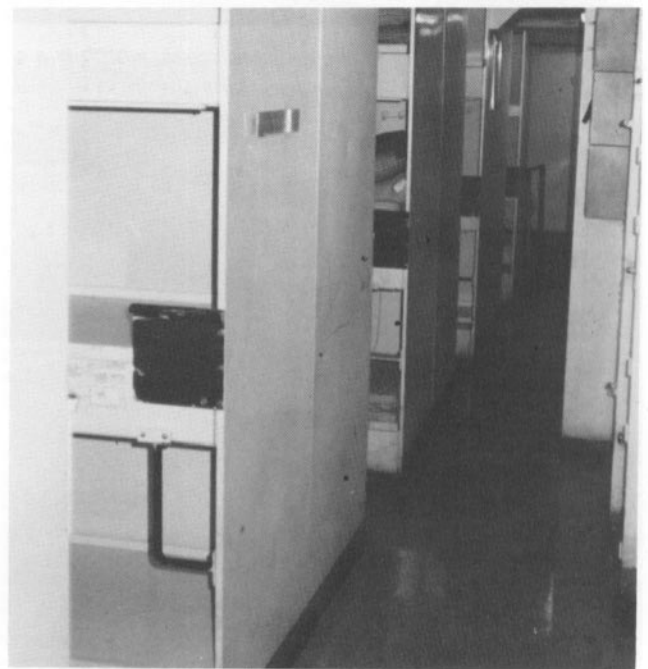
This stateroom was provided to the author when he visited the ENTERPRISE while the ship was at sea. The view at left looks into the room from the door, and the photograph at right looks from the bed back to the door. The door can be seen in the open position in the background, and the entry to the room is out of the picture to the left. Closet space, covered shelves, and drawers are to the right.



A desk is provided, and above it is a safe for valuables and a shelf unit.



The television is mounted so it can be viewed from the bed, and it receives all of the ship's various entertainment and information channels. As seen here, it is set to receive constant updates on the ship's position, Greenwich Mean Time, course, speed, and other information. At the time this photograph was taken, the carrier was 100.3 nautical miles from Norfolk, Virginia.



Enlisted berthing areas are far less spacious and glamorous. These two photographs show one of many such areas throughout the ship. Bunks are three high, and locker and drawer space is very minimal. Although not seen here, privacy curtains are usually on each bunk.

MISCELLANEOUS



Like other carriers, *ENTERPRISE* has her own television station, and several channels provide information and entertainment to the crew. Live telecasts can be made from the studio, and tapes of commercial shows and movies are played almost continuously. However, live shows from the United States cannot be received or telecast. At left is the control console for the television station, and at right is some of the equipment in the studio.



Below decks there exists a seemingly endless maze of passageways and knee knockers. A person can easily get lost if he doesn't know the system of deck levels and frame numbers.



The ship is divided by decks and frame numbers. The hangar deck is the main deck, and going down below it are the second deck, third deck, fourth deck, and so on down to the keel of the ship. Above the hangar deck, the decks are numbered in sequence starting with a zero. This sign indicates that it is on the "oh three" level, or two levels above the hangar deck. The flight deck is 04, and going up the superstructure, one can climb on past the 05, 06, 07, on up to the 011 level. Frame numbers begin at the forward end of the ship, and get progressively larger from fore to aft. This sign is at frame 144. The next number on the top row indicates how far the sign is to port or starboard, and the L indicates a living space. The S5 division has responsibility for the area.



VIPs and celebrities often visit the ship. Baseball Hall of Fame catcher Yogi Berra visited the ship at the same time as the author, and graciously signed numerous autographs for the crew while he was aboard.

MODELERS SECTION

GENERAL COMMENTS

More model kits have been released of the nuclear powered ENTERPRISE than any other aircraft carrier in history. They range in size from the diminutive 1/800th scale kit from Arii to Tamiya's huge 1/350th scale model. All except the old Aurora offering are generally good kits that can be built into excellent models with appropriate correcting of inaccuracies and varying amounts of detailing. But a good kit in the 1/700th--1/720th scale range is still needed of ENTERPRISE in her post-1982 configuration. We are hoping that Revell will update their excellent 1/720th scale kit to accurately reflect ENTERPRISE's configuration as she emerges from the yards in 1993. Also needed is a good kit of ENTERPRISE in 1/500th scale.

In this modelers section we review all of the models of ENTERPRISE that have been issued that can be considered by the serious scale modeler. We begin with the smallest scale, and work progressively up the scales to the largest. Along the way we also discuss the products available on the market that can enhance these kits and make them look better and more complete.

KIT REVIEWS

Arii 1/800th Scale New ENTERPRISE, Kit Number A123-1200

Being in 1/800th scale, this is the smallest of all model kits of ENTERPRISE. It fits in Arii's collection of carrier kits that includes the USS MIDWAY and all classes of the U.S. Navy's super carriers except for the FORRESTAL class and the unique USS AMERICA and USS JOHN F. KENNEDY. (Arii does offer a kit they claim is the USS AMERICA, but it is actually a model of USS CONSTELLATION and USS KITTY HAWK. See Detail & Scale Series, Volume 34.)

Kit number A123-1200 evidently is a re-release of an earlier kit which only provided ENTERPRISE in her original configuration with the beehive ECM housing. This new issue has the new superstructure, mast, radars, the Phalanx gun systems, and Mark 29 Sea Sparrow missile launchers with three of their four associated radars. But the old superstructure also remains in the kit, and although it is not included on the instructions, these "left over" parts from the original issue enable the modeler to build ENTERPRISE in either of her two major configurations. Since both F-14 Tomcats (only two) and F-4 Phantoms are included with the aircraft in the kit, the option to build either configuration is further enhanced. If the earlier configuration is chosen, A-4 Skyhawks and A-3 Skywarriors can be used from the Monogram or Minicraft 1/800th scale carrier kits. The kit comes with an electric motor which is designed to turn a fifth propeller which is larger than the other four and which has three blades. Forget it! This is supposed to be a scale model, not a toy.

Being in 1/800th scale, small detailing is difficult, yet



The Arii model of the ENTERPRISE is the smallest of all kits of the carrier that can be used by the serious modeler. It is in 1/800th scale, and can be built in the ship's original configuration with the beehive ECM installation or in the ship's present appearance. The kit is generally accurate, and can be built up into a nice model.

Arii has done a good job on this full-hull model. Small parts are delicate and nicely done, and while it can be argued that they are a bit thick in places, the strength of the plastic must be considered. Modelers will probably want to replace the whip antennas in the kit with thinner ones made of stretched sprue. Otherwise, most out-of-the-box parts will suffice.

Two errors in the kit are easily corrected. There are three Mark 29 Sea Sparrow launchers provided. Two are correct, but the one on the starboard quarter should be deleted. ENTERPRISE did not have a Mark 29 launcher in that position. A Mark 25 launcher had been there earlier, but at that time, there were no Phalanx systems, no associated guidance radars on the superstructure, and no Sea Sparrow on the starboard bow. Further, ENTERPRISE still retained her original superstructure configuration at that time. It is possible that a third Mark 29 launcher will be added to the starboard quarter during the 1990-1993 yard period, but that remains to be seen at this time.

The second error involves one of the radars associated with the Sea Sparrow launchers. Only three correct radars are included. The fourth is a different radar with four circular faces mounted side-by-side. The instructions show it being located on the forward end of the starboard facing. The radar in this location should be the same as the other three. Our suggestion is to buy two kits, build one in the early configuration, and use one of the correct radars from that kit with the second kit to build ENTERPRISE in her present configuration.

Two sprue trees of aircraft provide F-14, F-4, A-6, EA-6B, A-7, RA-5C, E-2, and SH-3 aircraft. Although the real ship carries only one tilly, two are provided in the kit. Be sure not to use F-14s with F-4s since these were not in the air wing at the same time.

Decals are marginal, but do provide both sets of dashed lines for each elevator. The problem is that orange was used instead of yellow on these lines and on the ones for the JBDs and the center landing stripe. The 65 for the flight deck is solid white. No decals are supplied for the markings and lettering on the superstruc-

ture except for the two 65s.

Extra detailing can be added to include everything from gun barrels for the Phalanx systems to rigging. The LSO platform is also missing from the catwalks, and must be added. The azimuth and elevation domes for the automatic landing control radar, the Belknap pole mast, and other features can also be added from small plastic scrap and card stock. Space does not allow us to cover every detail that should be added, so we suggest that the modeler study the detailed photographs in this book, and detail his model area by area to suit his own desires. But one place we would highly recommend doing extra work is the hangar deck. This, and all models of ENTERPRISE, comes with no hangar deck. Instead, the sliding doors that cover the openings into the hangar bays are molded in the closed position. It will take a little time and effort to add a hangar deck, the inner oval openings, and the walls, but the effect will greatly improve the appearance of the model.

Overall, this is a nice kit, and is well detailed for its small scale. With a little work and care, it can be made into an attractive model that will fit nicely into a collection of 1/800th scale carriers.

Revell 1/720th Scale USS ENTERPRISE, Kit Number H-489

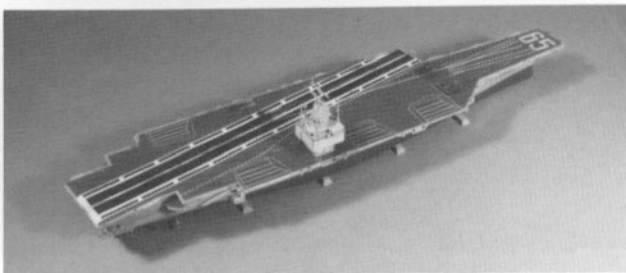
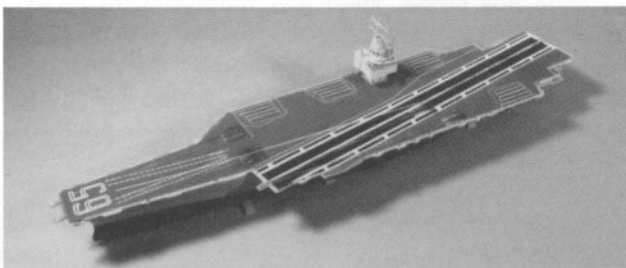
This is arguably the most accurate kit of ENTERPRISE available in any scale. Although it can only be built in the carrier's original configuration with the beehive ECM installation and billboard radar panels on the superstructure, it is a very accurate representation of ENTERPRISE in that form. It has been released several times, most recently with box art associating it with the book and movie, *The Hunt for Red October*, in which ENTERPRISE appeared. But in all of the releases, the plastic inside the box has not changed.

The kit can be built as a full hull or waterline model. Unlike other kits of ships that have this option but have hulls that must be cut apart, the hull in this kit comes in waterline form, and if it is to be built as a full hull model, the bottom of the hull must be glued to the sides. Four braces are fitted between the two sides of the hull to provide strength. Care must be exercised when assembling the hull, because the parts are warped to an extent. We purchased three different kits over several years of time, and all had this problem of warping. But it is not insurmountable, and the parts can be twisted and reshaped until they fit together properly. This was the only assembly problem we had. All other parts fit together nicely and required little or no filling and sanding.

The kit comes with the second taller mast with two yardarms, indicating that it was designed to represent ENTERPRISE as she appeared several years after joining the fleet. However, two twin Terrier missile launchers were also included with their respective missiles. These were planned for ENTERPRISE, but never fitted. It is a simple

matter to fill the locating holes for these launchers and leave the sponsons empty. This will result in the unarmed appearance ENTERPRISE had up until 1967 when the two Mark 25 launchers were installed on these sponsons. Mark 25 launchers are available in 1/700th scale (close enough that no one can tell the difference) in the Sky-wave kits SW-300 and SW-400, if the modeler wishes to depict ENTERPRISE in her 1967 to 1979 configuration. Other sources for these launchers are the Testors 1/720th scale kits of FORRESTAL class carriers and NIMITZ class carriers. Since the later ships of the NIMITZ class never carried the Mark 25 launchers in the first place, the modeler is not losing anything by using the launchers from those kits. These launchers are relatively simple box-like affairs, and could be built from scratch. Many modelers will want to add the whip antennas located around the flight deck, and these are easily made from stretched sprue.

Otherwise, the model is fairly complete and well detailed for a 1/720th scale ship model. The LSO platform is missing and must be added, but that is the only other major feature that modelers may want to add. All four JBDs come as separate pieces, and can be positioned in the raised or lowered position. The ones for cats one and three are the shorter type like the one now behind cat two (see page 22), but this is correct for the early configuration. The ones behind cats one and three were enlarged to their present size at a later date. All four elevators are separate pieces, and may be positioned in the raised or lowered positions. The catapults are lightly scribed and well executed rather than being the trench-like affairs found on other aircraft carrier kits. In fact, the entire flight deck is nicely done, and even the armament



The Revell 1/720th scale model of the ENTERPRISE represents the ship only in her original configuration. However, it is probably the most accurate model of ENTERPRISE available in any scale. This model was built out of the box by the author, and is shown here about ninety-five percent complete.

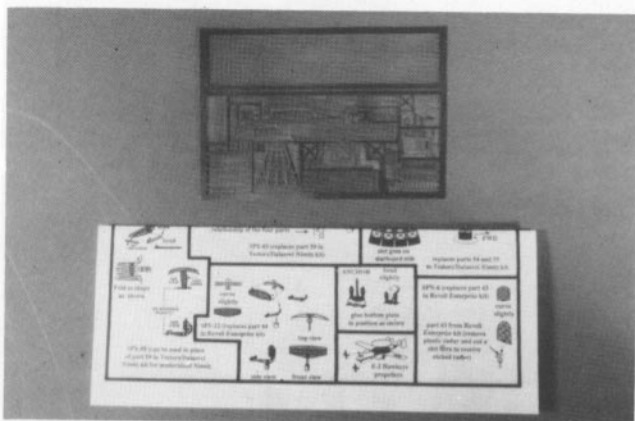
elevators, the cover for the barricade, and other features are nicely represented.

Aircraft provided in the kit include F-4 Phantoms, A-4 Skyhawks, RA-5C Vigilantes, A-6 Intruders, and E-2 Hawkeyes. We would recommend "stealing" at least one SH-3 from a Testors 1/720th scale carrier kit, since an aircraft carrier is seldom seen without a helicopter on deck. Here is where supplemental aircraft kits would come in handy.

Decals are very sparse, and provide only an outlined **65** for the flight deck and two small shadowed **65**s for the superstructure. **ENTERPRISE** is included in small black letters for the fantail. All other markings must be painted on. We recommend painting the landing area anyway, but adding the smaller markings on the flight deck is more easily accomplished with decals. This is where Gold Metal Models decal sheet 700-1D comes in handy. It provides red and yellow dashed lines for elevators, **E** awards, numbers, and other markings. Foul lines can be made by first laying the solid red stripe decals from this sheet on the model, then placing the white dashed stripes over them. The result will be the appropriate red and white dashed foul line. Also provided on this sheet are black windows for the bridges.

As with the 1/800th scale kit reviewed above, we highly recommend adding a hangar deck to this model. Closed hangar bay doors are provided to prevent a hollow appearance for the hull, but the finished model will be much more attractive if card stock is used to add a hangar deck and a few aircraft are positioned just inside the openings.

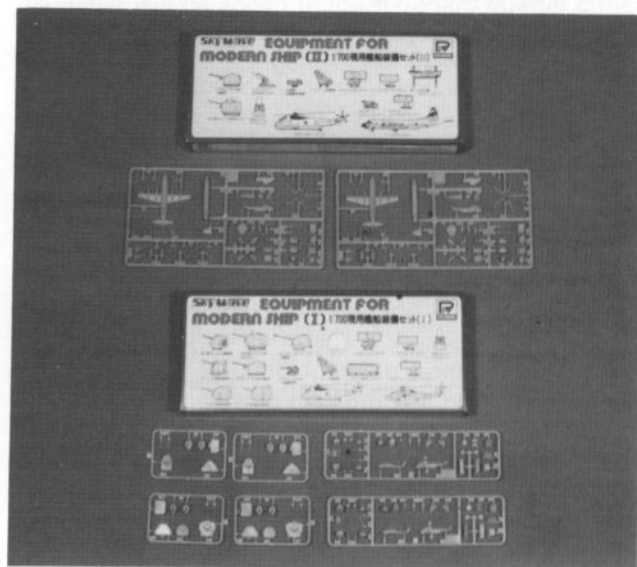
Gold Metal Models also produces several photoetched metal sheets that can be used to detail and enhance this model. Most important is sheet 720-11, which is a sheet specifically designed for this kit and the Testors NIMITZ class carrier models. This sheet provides safety netting, anchors, radars, and railings for



Gold Metal Models produces this photoetched sheet of parts that are designed to be used with the Revell 1/720th scale kit of **ENTERPRISE** as well as the Testors kits of NIMITZ class carriers. It includes radars, safety netting, railings, anchors, and ladders. Using it to replace small parts not easily represented in plastic will greatly improve either kit.

ENTERPRISE. Using this sheet to replace small and finely detailed parts that cannot be represented well in plastic will greatly improve the finished appearance of the model. Sheet 700-17 provides naval figures in 1/700th scale that can be placed around the flight deck and other areas to provide "action" on the model. Sheets 700-22 (doors, hatches, fire hoses, and life rings), 700-19 (extra ladders), and 700-1 (naval ship) also provide photoetched metal parts that can be used to further detail this kit. Information about ordering these and other parts from Gold Metal Models can be obtained by writing to: Gold Metal Models, 12332 Chapman Avenue, Number 81, Garden Grove, California 92640. Include a SASE for your reply.

It is unfortunate that Revell has not reworked this kit to represent **ENTERPRISE** in her post-1982 configuration like Ariei did with their kit. It would be a relatively simple thing to do, since only a new superstructure, three Phalanx systems and sponsons, and two Mark 29 Sea Sparrow missile launchers and their radars would be required. Ariei did this simply on one small tree of plastic. Revell would also have to update the air wing, but all-in-all, this would not take much effort or money like the update they did to their **FORRESTAL** kit. That was a major undertaking, but this would not be. However, until Revell reworks the kit, the only way to build a 1/720th scale **ENTERPRISE** in her present configuration would be to convert this kit. A good modeler could accomplish this by building a new upper superstructure, mast, and radars, and by adding the appropriate weapons systems. This could be done with flat plastic card and parts from the Skywave kits SW-300 and SW-400. The final product would be well worth the effort. The barrel-shaped life



Skywave produces kits with equipment or parts for modern ships in 1/700th scale. Kits SW-300 and SW-400 can be used to detail the Revell 1/720th scale model of **ENTERPRISE** or to help convert it to its present configuration. Included are Mark 29 Sea Sparrow launchers and Phalanx gun systems.

rafts and other details could be obtained from a Testors kit of ROOSEVELT or EISENHOWER. But this is an excellent kit, and built out of the box or as a conversion, it will be an accurate and attractive addition to any model collection.

Aurora 1/400th Scale USS ENTERPRISE, Kit Number 720

Since no kits of ENTERPRISE have ever been produced in or near 1/600th or 1/500th scales, the next largest model that can be built is in 1/400th scale. Two kits have been produced in this large scale, the oldest being the Aurora kit that was also subsequently released under the Monogram label after Aurora went out of business. In 1961, when this kit was issued, it was the largest aircraft carrier kit ever produced, and it cost \$12.00! Today, it is hard to find a good 1/72nd scale fighter for that price.

Aurora did a fairly good job of representing ENTERPRISE in her "as built" configuration with the beehive ECM installation and billboard radar panels. Even the original short mast with the single yardarm is represented in the kit. Terrier missiles and launchers are also provided, and if anyone was to build this kit, they should be left off.

The kit came in motorized and un-motorized versions, and the center section of the three-section flight deck was held in position with screws so that it could be removed to gain access to the electric motors and batteries.

The dark gray portion of the landing area was already painted on the flight deck, as were the white stripes forming its boundaries. The center line was on the decal sheet, and the decals were rather crude. They included a solid yellow 65 for the flight deck (never carried by ENTERPRISE), two white 65s for the superstructure, and various other dashed lines. Decals for the aircraft were also provided as were depth numbers for the stern and bow, and red outlines were included for the armament elevators. A white ENTERPRISE was supposed to go on the stern, but it should have been black.

Neither the Aurora release nor the subsequent Monogram kit is still commercially available. The only real



The old Aurora model of ENTERPRISE was the first big scale model of the ship, and is not bad considering that it is now thirty years old. But it is not as good as the Otaki kit, and its only value now is to collectors. When it was first issued, it cost \$12.00.

value this kit may have is for the collectors. It is not as well detailed or as accurate as the Otaki 1/400th scale model reviewed below. Its aircraft, which include F-4 Phantoms, F-8 Crusaders, A-4 Skyhawks, and HUP helicopters are not too bad, and with some reworking to remove the deep panel lines, could be used with the Otaki kit to supplement the aircraft in that kit. At least they could be positioned on the hangar deck if one is added to that kit.

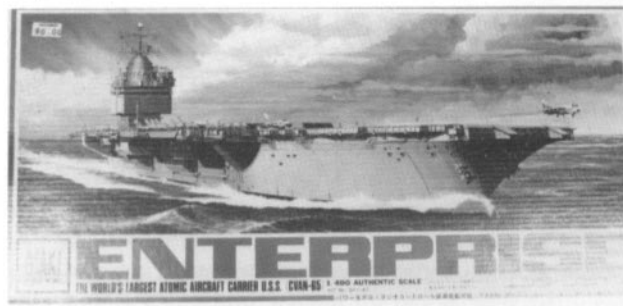
Considering its age, this really is not a bad kit, and in the early 1960s it was considered quite good. But with the more accurate and much better Otaki kit available in this scale, it is best left for the kit collectors.

Otaki 1/400th Scale USS ENTERPRISE, Kit Number OT 1-47

When first issued, this kit retailed at \$50.00, then it escalated to \$80.00 and upward. But it is far superior to the Aurora kit in the same scale, and in some ways it is even better than the Tamiya kit. If you want to build a large scale model of ENTERPRISE in her early configuration, this is the kit to use. It represents ENTERPRISE as she appeared between 1967 and 1979. The taller mast with the two yardarms is included as are two Mark 25 Sea Sparrow launchers on the quarters. This represents the carrier's appearance during her second through fifth combat deployments to Southeast Asia. By deleting the Sea Sparrow launchers and converting the mast to the shorter version with the single yardarm, the model could be made to represent ENTERPRISE in her as-built configuration.

Like the Aurora kit, this model is motorized, but who would want such an expensive toy? Forget the electronic gadgetry, and build this model into a showpiece if you are going to build one at all.

The hull is all one piece, and accurately depicts the real thing. Again, closed doors are provided to seal off the openings to the hangar deck. For a model this size, the effort of adding and detailing a hangar deck would be well worth the effort. Lighting it with small bulbs from an electronics store would make the model even more impressive.



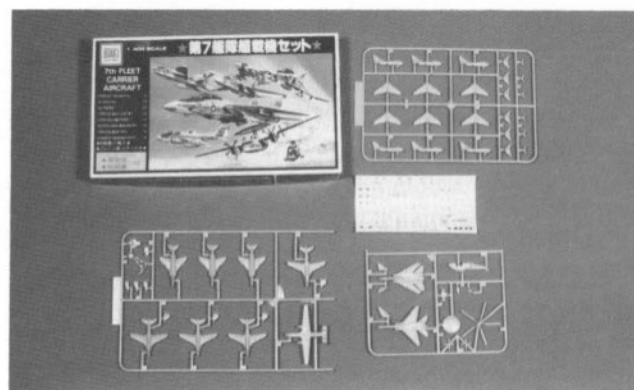
Otaki's 1/400th scale model is truly excellent, and represents ENTERPRISE in her early configuration. The model is well detailed, and really worth building if one can be found. Retail price ran between \$50.00 and \$80.00 when it was first issued.

Detailing is excellent throughout, and even the smallest parts are as delicately done as is possible with plastic. Reels for hoses are provided for the catwalks, and the older box-like stacks of life rafts are included for the outside of the catwalks. Radars and other types of antennas are also nicely done, and accurately represent the real thing. On the minus side, the safety netting around several places on the edges of the flight deck is represented only by the framework with no netting included. We don't know why Otaki did this, but some fine mesh net or screen can probably be located to attach to the framework. However, the netting on the edges of the elevators is represented in the plastic between the framework. For the most part, the whip antennas that are located around the flight deck are too short and will need to be replaced, but otherwise, Otaki evidently did a great job with their research and their execution of this kit.

The decal sheet is excellent as far as the aircraft are concerned. It even provides squadron markings for the various types, and this is a nice plus. Most carrier decal sheets only provide basic national insignia and **NAVY**s for the aircraft. But the decals for the ship itself leave a lot to be desired. There aren't even any **65**s for the superstructure. A large solid **65** is provided for the flight deck, and landing lines are also included, although the yellow segments of the center stripe are orange instead of the correct yellow. These landing lines are best painted on anyway, and really do not need to be supplied as decals. What are needed as decals are the smaller markings for the flight deck, and these are not on the instruction sheet. The foul lines, markings around elevators, JBDs, armament elevators, and warnings on the superstructure that caution crewmen about the hazards of jet blasts, props, and rotors, are not on the decal sheet. It makes a lot more sense to supply these smaller markings as decals than it does to provide the large, straight, landing lines that are easily and more effectively painted on.

The aircraft are nicely done for the most part. The noses of the Phantoms are too long, and this makes them look more like F-4Es than any of the Navy versions. These are easily shortened. The horizontal stabilizers on the F-4s are too flat, and they should be angled down a little more. F-14s (2), F-4s (6), RA-5Cs (2), A-6s (6), A-7s (12), E-2s (2), EA-6Bs (2), and SH-3s (2) are included. These can be supplemented with more of the same aircraft from Otaki's aircraft kit number OT 2-31. No S-3A Vikings are provided, but it should be kept in mind that this model of ENTERPRISE represents the ship while she was still operating as an attack carrier, CVAN-65. This was before the CV concept when anti-submarine aircraft were added to her air wing.

We do not know of any photoetched metal sheet designed specifically for this kit, and it is a shame that one does not exist. This large model needs metal parts for the radars and other small delicate pieces to include the missing safety netting. But Gold Metal Models does produce a photoetched sheet in 1/400th scale that is numbered 400-1. It supplies various general parts for



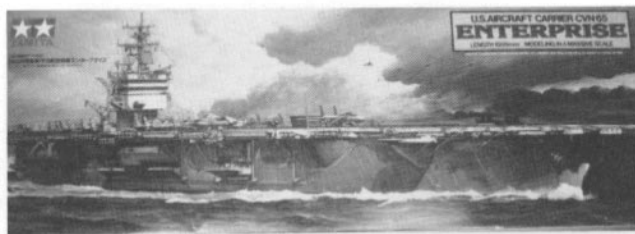
Otaki issued this kit of additional aircraft in 1/400th scale that can be used with their ENTERPRISE kit. All aircraft types are supplied with the ENTERPRISE model, so this kit merely supplies additional aircraft of each type. Decals are also provided in the kit, and include unit markings.

naval ships, and sheet number 400-2 provides doors, hatches, fire hoses, and life rings. Sheet 350-8 contains figures that can be used on both 1/350th and 1/400th scale models to add life to the subject. All of these sheets will help detail and enhance this model.

Unlike an F-14 model that almost everyone has in their collection, this model is a kit that is built by relatively few modelers. It is not "just another model" to be added to a collection, but is one that deserves a great deal of time and patience to turn it into a true work of art. This will more than justify the high cost of the kit. It is no longer available commercially, and is difficult to find from collectors. But if you are lucky enough to have one, or you come across one somewhere, take the time to look it over and consider its excellent possibilities.

Tamiya 1/350th Scale USS ENTERPRISE, Kit Number 7307

Released in 1984, many modelers may consider this to be the ultimate kit of ENTERPRISE or any aircraft carrier. But big does not necessarily mean great, and the fact is that it leaves a lot to be desired, particularly considering its astronomical price. Retail price as of this writing was \$198.98 for the basic kit, so that means that once the taxes are paid, the modeler will spend over two hundred dollars just to get started. It would seem logical that anyone who would be willing to spend that much money on a single kit would also want to take a lot of time and put forth the effort to make it the best model possible. But in order to do so, more money will have to be spent to correct Tamiya's errors, and add what was left out of the basic kit. A great deal of time and even more money must be spent to detail the model, because much of Tamiya's detailing is very poor, and in some places it is left out entirely. We know of several modelers who have worked steadily on this kit for over three years (over 3000 hours) to produce an excellent model.

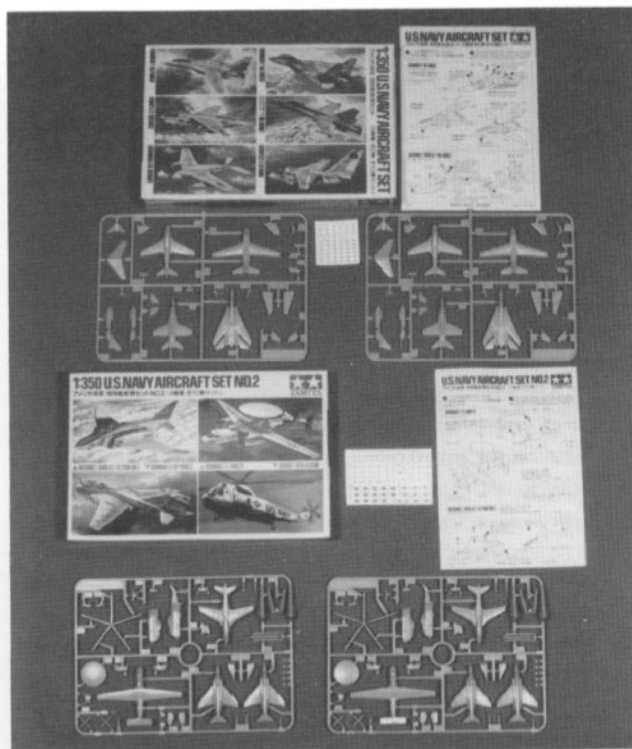


The largest kit of ENTERPRISE is Tamiya's 1/350th scale kit. It has many inaccuracies and shortcomings, and it is astronomically expensive. But with help from a sheet of photoetched metal parts from Gold Metal Models, and hours and hours of work correcting inaccuracies and detailing the model, this kit can be made into a true showpiece.

Even in 1984, and at the original asking price of approximately \$140.00, we believe Tamiya shortchanged the modeler. For that kind of money, Tamiya should have at least included a basic hangar deck, but all that was provided were poor representations of closed sliding doors at each opening to the hangar bays. We cannot imagine a modeler wanting to build a carrier kit this large without including a hangar deck, so more money will have to be spent on plastic card stock to build the basic structure, and for other items to add details. It will require a lot more time to build the hangar bays from scratch than it would have if Tamiya had provided the parts.

The second area where Tamiya did not include what they should have has to do with the air wing. We could have understood it if Tamiya had not included an entire air wing, but as a very minimum, they should have provided at least one of each type of aircraft in the wing. This is especially true for the SH-3H helicopters. If any aircraft are included, the helicopters should be. These are almost always present on the flight deck, unless the entire air wing is ashore. Likewise, EA-6B Prowlers and E-2C Hawkeyes are also missing from the kit. Yet Tamiya did include some F/A-18 Hornets. That type of aircraft had never been assigned to ENTERPRISE's air wing up until 1990 when the ship went into the 1990-1993 yard period, and certainly were not aboard ENTERPRISE when this kit was issued in 1984. The aircraft that are included are not well detailed either. Considering their 1/350th scale size, pylons and even some external fuel tanks and ordnance stores should have been provided. Pylons can be added from very thin plastic card or metal stock, but making the ordnance from scratch will pose some real problems. The decals for the aircraft are minimal, with only the basic national insignias and **NAVY** markings being provided.

To correct this shortage of aircraft and aircraft types, Tamiya later issued two U.S. Navy aircraft sets in 1/350th scale. The first set was just a repeat of the same types of aircraft that came with the basic ENTERPRISE kit, while set number two supplied the types of aircraft missing from the carrier kit. These included the F-4J Phantom, E-2C Hawkeye, EA-6B Prowler, and SH-3H Sea King



Tamiya issued these two kits to provide extra aircraft to go on their model of ENTERPRISE. Set number one, seen at the top of this photograph, supplies additional aircraft of the types included in the ENTERPRISE kit. Set number two is even more valuable because it provides E-2C Hawkeyes, SH-3H Sea Kings, and F-4 Phantoms. None of these types are included in the basic ENTERPRISE kit, and all but the Phantoms are in her most recent air wing. The finished model would truly be incomplete without examples of these types of aircraft on the deck.

helicopter. By purchasing enough of these extra aircraft sets, the modeler can now place an entire air wing aboard his model. But again the decals are minimal, and the detailing of the aircraft must be enhanced by the modeler.

Detailing of the carrier model itself leaves a lot to be desired considering the size and cost of the kit. Reels for refueling hoses are provided, but they are way too big in diameter, and do not contain any hoses. The three larger JBDs all are in three sections, and this is incorrect. The slots in the catapults are so large that, if scaled up, a man could break his leg stepping into one. The real things are perhaps two inches wide. The windows for the bridges are open, leaving the superstructure with a hollow look. Many other details that are justified on a carrier model of this size are simply missing or poorly done. It is incredible that there is no representation of the LSO platform on this model!

There are numerous inaccuracies as well. Tamiya provides three Mark 29 Sea Sparrow launchers, and the one on the starboard quarter should be deleted. As of 1990, it is not, nor has it ever been, there on the real ship.

A Mark 25 launcher had been there earlier before the 1979-1982 yard period, but was removed at that time. Since the model represents the ship in her post-1982 appearance, this third launcher is incorrect. The SPS-49 radar is the wrong size, and the radars in general are poorly done. This is particularly true of the SLQ-17 electronic warfare antennas.

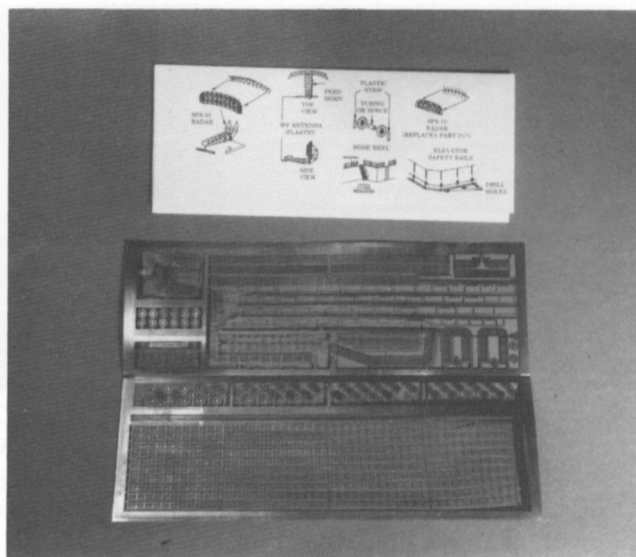
It would take many pages to describe the poor detailing and inaccuracies, but the modeler can get a better idea of what we are talking about by studying the detailed photographs in this book, then comparing what is in the photographs with what is represented in the kit.

But poor detailing, omissions, and inaccuracies are not all of the problems with this kit. Several modelers who have built this kit have told us about the poor fit, particularly with the parts for the superstructure. A lot of filling and sanding will be required, especially on the top of the superstructure.

The decal sheet is very incomplete, and not even the flight deck number is included. There are two shadowed **65s** and warning signs for the superstructure. Markings are provided for the electrical outlet connections on the flight deck, yellow and black stripes for the yellow gear, some outlines for the JBDs, the name **ENTERPRISE** for the stern, and a set of flags for the rigging. But there are no elevator markings, no markings for the armament elevators, no foul lines or other important markings. The modeler is left to paint these on, yet the instruction sheet does not even show the locations of the foul lines around the landing area. It is understandable that the landing lines should be painted on, but the lines around elevators and the foul lines are a different story. The **USS ENTERPRISE** and **CVN-65** for the forward face of the superstructure is not included, nor is the **BIG E** marking on the aft face. It is possible that these were added to the real ship after the kit was researched by Tamiya, but it was a relatively short time after **ENTERPRISE** came out of the yard in 1982 when these markings were added. They have been standard features on the carrier ever since.

Fortunately, Gold Metal Models has taken the initiative to solve many of the problems that Tamiya has caused. A sheet of photoetched metal parts has been designed to be used specifically with this kit. Numbered 350-2 and costing \$25.00, this sheet provides radars (in the correct size), railings, stairs, ladders, hose reels (still with no hoses), safety netting, and railings to go around elevators that are displayed in the lowered position. Other Gold Metal Models sheets that will prove helpful include sheet 350-8 (naval figures), 350-9 (extra ladders), and 350-11 (doors, hatches, fire hoses, and life rings).

Gold Metal Models also produces two decal sheets that will be beneficial to anyone building this large kit. The first of these is 350-1D, which supplies general markings for naval ships. Included are markings to go around the elevators and the foul lines. The foul lines are done by first positioning a solid red stripe, then covering it with a second decal of white dashes. Together, they result in the correct red and white dashed foul lines.



*This photoetched metal sheet from Gold Metal Models is for the Tamiya 1/350th scale **ENTERPRISE** kit, and is essential if an accurate model is to be built. The radars in the Tamiya kit are inaccurate and the wrong size. Using this sheet will result in better looking radars of the correct size. Reels for hoses, ladders, stairs, railings, and safety netting are also included on this sheet.*

The second sheet of decals from Gold Metal Models that will be almost indispensable is sheet 350-2D, entitled **ENTERPRISE Air Wing Decals**. This sheet provides squadron markings and other small markings for the aircraft in the air wing. This sheet is excellent, and will save the modeler a lot of time and effort. However, there are a couple of criticisms we have of it. The markings for the E-2s are not for **ENTERPRISE**'s air wing. Instead, they are for two other squadrons. One is for VAW-123's Screwbirds from CVW-1 and **USS AMERICA**, and we cannot tell for sure what the other unit is. Decals were provided for the A-6Es of VA-95, but not the more colorful KA-6Ds. Only VA-22's markings are provided for the A-7s, and it would have been nice to have markings for VA-94 as well. F-4 markings are for two units that did not operate from **ENTERPRISE** at any time so far as we know. Markings for Marine squadrons are provided for the F/A-18 Hornets, but this is fine, since no Hornet squadrons have yet been assigned to **ENTERPRISE**. It is possible that these, as well as other F/A-18 squadrons have conducted carrier qualifications aboard **ENTERPRISE** at some point in time. But overall, this is a good decal sheet, and while it will not solve all the problems of marking the aircraft, it will go a long way in doing so.

Overall, we cannot give this kit a lot of praise. There are simply too many inaccuracies and insufficient or poor detailing. Not enough is provided to justify the price.

If you want to build a truly outstanding museum quality model of an aircraft carrier from a kit, start with this one, but be prepared to spend a lot of time and effort to justify the expense.

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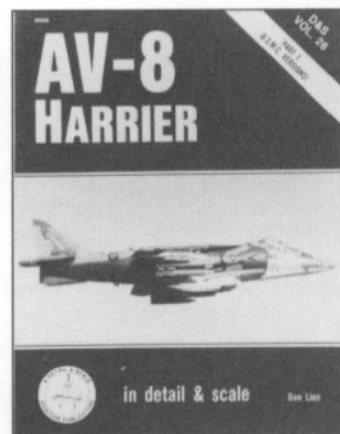
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